HIGHLIGHTS

Trends in Research Doctorates

- The number of research doctorates awarded in 1983 was 31,190, a slight increase from the 31,074 doctorates granted in 1982.

- In 1983 the number of women receiving the doctorate reached an all-time high of 10,485, or 34 percent of the new doctorate recipients. A dramatic change in gender proportions within broad fields occurred in education, where the number of women exceeded the number of men for the first time.

- The number of male doctorates continued the slow decline from the peak years in the early 1970s with 20,705 doctorates granted in 1983.

- In the early 1970s, the strong growth patterns of all fields characteristic of the 1960s began to diverge, as the numbers of physical sciences, engineering, and humanities Ph.D.s declined while the number of doctorates in fields such as the life sciences continued to increase through the 1970s.

- U.S. citizen doctorate recipients and the comparable U.S. population cohort (25- to 34-year-olds having completed 16 or more years of education) increased in number through the early 1970s. However, while the number of Ph.D.s declined after 1975, the size of the population cohort continued increasing at an annual rate of approximately 5 percent.

Ph.D. Component of New Entrants to the U.S. Labor Force

- Virtually all of the U.S. citizens and non-U.S. citizens with permanent visas planned to enter the U.S. labor market following the Ph.D. In 1983 roughly one-half of the temporary-visa holders also planned employment or further study in the United States.

- Non-U.S. citizen Ph.D.s in engineering, mathematics, and physical sciences tend to remain in the U.S. following graduation in greater proportions than do doctorates in other disciplines. For example, over half (53 percent) of the Ph.D.s in engineering were non-U.S. citizens while 47 percent had plans for study or employment in the U.S.

- Like other non-science doctorate recipients, humanities Ph.D.s entering the U.S. labor force are predominantly U.S. citizens. However, humanities doctorates are unique in that the majority of the non-U.S. citizens are holders of permanent rather than temporary visas.

Postgraduation Employment and Study Plans

- The proportion of new entrants still seeking appointments at the time of doctorate grew steadily through the 1970s, from 19 percent in 1969 to 27 percent in 1983. While the proportion seeking postdoctoral study has remained stable (3 to 5 percent), the percentage seeking employment increased from 15 to 22 percent during the 15-year period.

- Among new entrants with definite commitments, postdoctoral study plans increased while the proportion securing academic appointments decreased from 47 percent in 1969 to 32 percent in 1983.

- Considerable variation in characteristics of new doctorate recipients were found within the field of engineering. For example, although 1983 engineering Ph.D.s tend to go directly into employment following the doctorate (55 percent had a definite employment commitment and 21 percent were seeking employment), over one-quarter of the engineers in two fields--materials (28 percent) and aeronautical engineering (26 percent)--were either seeking or had obtained postdoctoral study.

R6000-7

Summary Report 1983

DOCTORATE RECIPIENTS FROM UNITED STATES UNIVERSITIES

The Survey of Earned Doctorates is
conducted by the
National Research Council for the
National Science Foundation,
the U.S. Department of Education,
the National Institutes of Health, and
the National Endowment for the Humanities

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Office of Scientific and Engineering Personnel
NATIONAL RESEARCH COUNCIL

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NOTICE: The project that is the subject of this report was approved by the Governing Board of the National Research Council, whose members are drawn from the councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The survey project is part of the program of the Office of Scientific and Engineering Personnel.

This report has been reviewed by a group other than the authors according to procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

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This report is based on research conducted by the National Research Council with the support of the National Science Foundation, the U.S. Department of Education, the National Institutes of Health, and the National Endowment for the Humanities under NSF Contract No. SRS-8214433. Opinions, findings, conclusions, or recommendations expressed in this publication are those of the National Research Council and do not necessarily reflect the views of the sponsoring agencies.

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FOREWORD

This report presents a brief summary of the results of the 1982-83 Survey of Earned Doctorates, which has been conducted each year since 1958 by the Office of Scientific and Engineering Personnel (OSEP) of the National Research Council (NRC). Questionnaire forms, distributed with the cooperation of the graduate deans of U.S. universities, are filled in by the graduates as they complete all requirements for their doctoral degrees. The doctorates reported here were earned during the period July 1, 1982, through June 30, 1983, and include research and applied-research doctorates in all fields. Professional degrees such as the M.D., D.D.S., O.D., D.V.M, and J.D. are not covered by this survey. A full list of titles of degrees included can be found on the inside back cover.

Responses were received from 29,794, or 96 percent, of the 31,190 doctorates granted in 1983. When individuals did not complete the questionnaire, abbreviated records were compiled using information from the universities' commencement bulletins. As a result, basic information--such as sex, field, institution, and year of Ph.D.--is available for all of the 31,190 doctorate recipients.

This Summary Report is the seventeenth in an annual series of reports that began in 1967. Trend data from earlier periods can be found in the book, A Century of Doctorates: Data Analyses of Growth and Change (National Academy of Sciences, 1978). All survey responses become part of the Doctorate Records File (DRF), a virtually complete data bank on doctorate recipients from 1920 to 1982. Approximately four-fifths of the 756,134 records now in the DRF have come from results of the 1958 to 1983 surveys. For doctorates granted during the 1920 to 1957 period, information was compiled from commencement bulletins, registrars' records, and other published material.

The reader should note that a revised list of field specialties was used in the 1983 survey. This new field taxonomy was adopted to make these doctoral data more comparable with the higher education data collected by the National Center for Education Statistics. Although most field-related data have been unaffected by this revision, caution should be exercised in the use of the subfield data in conjunction with earlier Summary Reports. A special technical appendix has been added to this report to explain in detail the changes made and the effects of those modifications on time-series data.

The conduct of the Survey of Earned Doctorates, the maintenance of the resulting data file, and the publication of this report are funded jointly by the National Science Foundation, the U.S. Department of Education, the National Institutes of Health, and the National Endowment for the Humanities. OSEP thanks these agencies for their support. Charles Dickens of the National Science Foundation is the project officer for the agencies; his interest, aid, and counsel are appreciated. We also express our thanks to the graduate deans in the doctorate-granting institutions for their continuing interest and assistance in this project.

The Survey of Earned Doctorates is conducted under the direction of Peter Syverson. Lorna Forster was responsible for the development of the summary statistics presented in this report. In addition, Charles Dickens of the National Science Foundation, Lou Venuto of the U.S. Department of Education, George Bowden of the National Institutes of Health, and Arnita Jones of the National Endowment for the Humanities have provided constructive advice on the design and analysis of the survey, a contribution that increases its relevance to national policy issues. William K. Estes and Charlotte Kuh, members of the OSEP Advisory Committee, provided valuable assistance in the review of the report. Special appreciation also goes to Doris Rogowski, who supervised the coding and editing of the data; to Joseph Finan and George Boyce, who were responsible for the computer programming and processing; and to Patricia King for her many contributions to this report.

OSEP is concerned with those activities of the National Research Council that contribute to the more effective development and utilization of the nations scholars and research personnel. Its programs seek to strengthen higher education and to develop better understanding of the educational process. It is hoped that prompt reporting of the present data to educational, governmental, and professional agencies will facilitate planning in higher education. Suggestions for improvement of the content or format of the report and questions or comments are welcome.

Peter D. Syverson
Director
Doctorate Records Project

INTRODUCTION

Selected statistics from the 1983 Survey of Earned Doctorates and from past surveys are highlighted in this report. The report begins with a brief description of trends in the earning of doctorates by field and sex during the last decade, followed by a comparison of the growth patterns of the new doctorate cohorts with changes in the size of the highly educated component of the U.S. population. A special section explores data on doctorate recipients entering the U.S. labor force from 1959 to 1983. Information on citizenship status and postgraduation plans is used to narrow the potential pool of all doctorate recipients to those most likely to remain in the United States for employment or further study. Changes in the postgraduation plans of this group, including type of anticipated employer, are examined over a 25-year period. This section concludes with a close examination of plans of new Ph.D.s in engineering, where a lively national debate is under way on the adequacy of current and future supply for the U.S. labor market.

Earlier reports in the Summary Report series presented highlights on long-term trends in the plans of new doctorate recipients for postdoctoral study or employment (1982) and on the sources of support used by doctorate recipients to finance their graduate studies (1981).

TRENDS IN THE NUMBER OF DOCTORATES GRANTED TO MEN AND WOMEN BY FIELD

A total of 31,190 research doctorates were awarded by U.S. universities during the period July 1, 1982, to June 30, 1983, an increase of 116, or less than 1 percent, from the 31,074 doctorates granted in 1982. This small upward movement represents a continuation since 1977 of slight variations in the number of doctorates received within the range of 31,000 to 32,000. Table A and Figure 1 show the total numbers of doctorates granted over the 1960 to 1983 period and the relative proportions each major field category is of that total.

During the strong growth period of the 1960s and early 1970s, the six field groupings displayed in Table A followed parallel patterns of steady annual increases in the numbers of doctorate recipients. In the beginning of the 1970s, however, these trends begin to diverge when the number of physical sciences and engineering Ph.D.s peaked at 5,739 and 3,503, respectively, and declined in subsequent years. Doctorate recipients in life science fields continued to grow in number, with some variation, through the 1970s to a maximum of 5,709 in 1982. The number of new Ph.D.s in the social sciences increased until 1976 but has generally declined since that year. Numbers in the humanities reached their highest levels in 1973, shortly after the physical sciences and engineering, and have declined by over one-third since then. The peak year for education doctorates was 1976 and for the professional fields 1982.

Figure 1 shows a common pattern of increases to a maximum then slow declines, but with the relative proportions of doctorates by field subject to large changes from earlier to more recent years. For example, physical sciences and engineering doctorate recipients were over one-third of the total new Ph.D.s in the mid-1960s, declined to 29 percent in 1971 (their peak numerical year) and now account for 23 percent of all new doctorates. Doctorate recipients in the life sciences, who peaked in number in 1982, now constitute about the same 18 percent of the new doctorate population as they did in 1960.

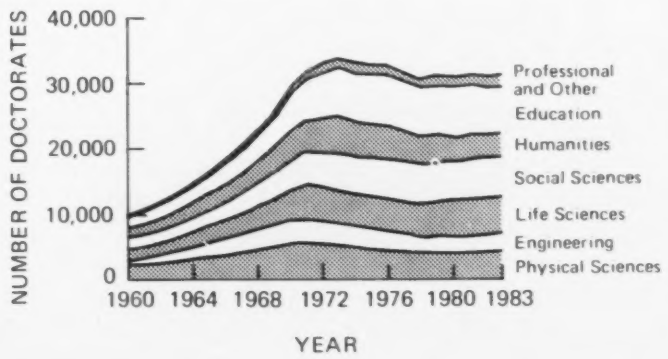


FIGURE 1 Doctorates awarded by United States universities: Number by field of degree, 1960-1983. SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

TABLE A Number of Doctorates by Field of Study, 1960 to 1983

Year of Doctorate	Field of Doctorate							
	Total	Phys. Sci.	Engin.	Life Sci.	Soc. Sci.	Human-ities	Educ.	Prof& Other
1960	9,733	2,152	794	1,729	1,668	1,600	1,549	241
1961	10,413	2,325	940	1,783	1,778	1,624	1,679	284
1962	11,500	2,485	1,216	1,975	1,890	1,725	1,893	316
1963	12,728	2,910	1,357	2,083	2,027	1,842	2,137	372
1964	14,325	3,115	1,664	2,361	2,258	2,169	2,351	407
1965	16,340	3,550	2,074	2,684	2,327	2,530	2,736	439
1966	17,949	3,828	2,301	2,885	2,619	2,711	3,040	565
1967	20,403	4,333	2,604	3,143	3,102	3,087	3,481	653
1968	22,936	4,652	2,855	3,707	3,495	3,467	4,029	731
1969	25,743	5,005	3,265	4,204	3,984	3,788	4,659	838
1970	29,498	5,628	3,434	4,693	4,566	4,278	5,857	1,042
1971	31,867	5,739	3,498	5,268	5,189	4,648	6,435	1,090
1972	33,043	5,538	3,503	5,083	5,470	5,055	7,085	1,309
1973	33,755	5,311	3,364	5,167	5,758	5,414	7,238	1,503
1974	33,047	4,976	3,147	4,962	5,884	5,170	7,241	1,667
1975	32,951	4,857	3,002	5,026	6,066	5,046	7,359	1,595
1976	32,946	4,509	2,834	5,026	6,214	4,881	7,725	1,757
1977	31,717	4,379	2,643	4,920	6,073	4,562	7,455	1,685
1978	30,873	4,193	2,423	5,038	6,039	4,231	7,194	1,755
1979	31,237	4,299	2,490	5,223	5,961	4,139	7,385	1,740
1980	31,015	4,111	2,479	5,460	5,855	3,868	7,586	1,656
1981	31,345	4,170	2,528	5,607	6,142	3,748	7,497	1,653
1982	31,074	4,284	2,646	5,709	5,836	3,559	7,232	1,808
1983	31,190	4,424	2,780	5,540	6,055	3,494	7,147	1,750

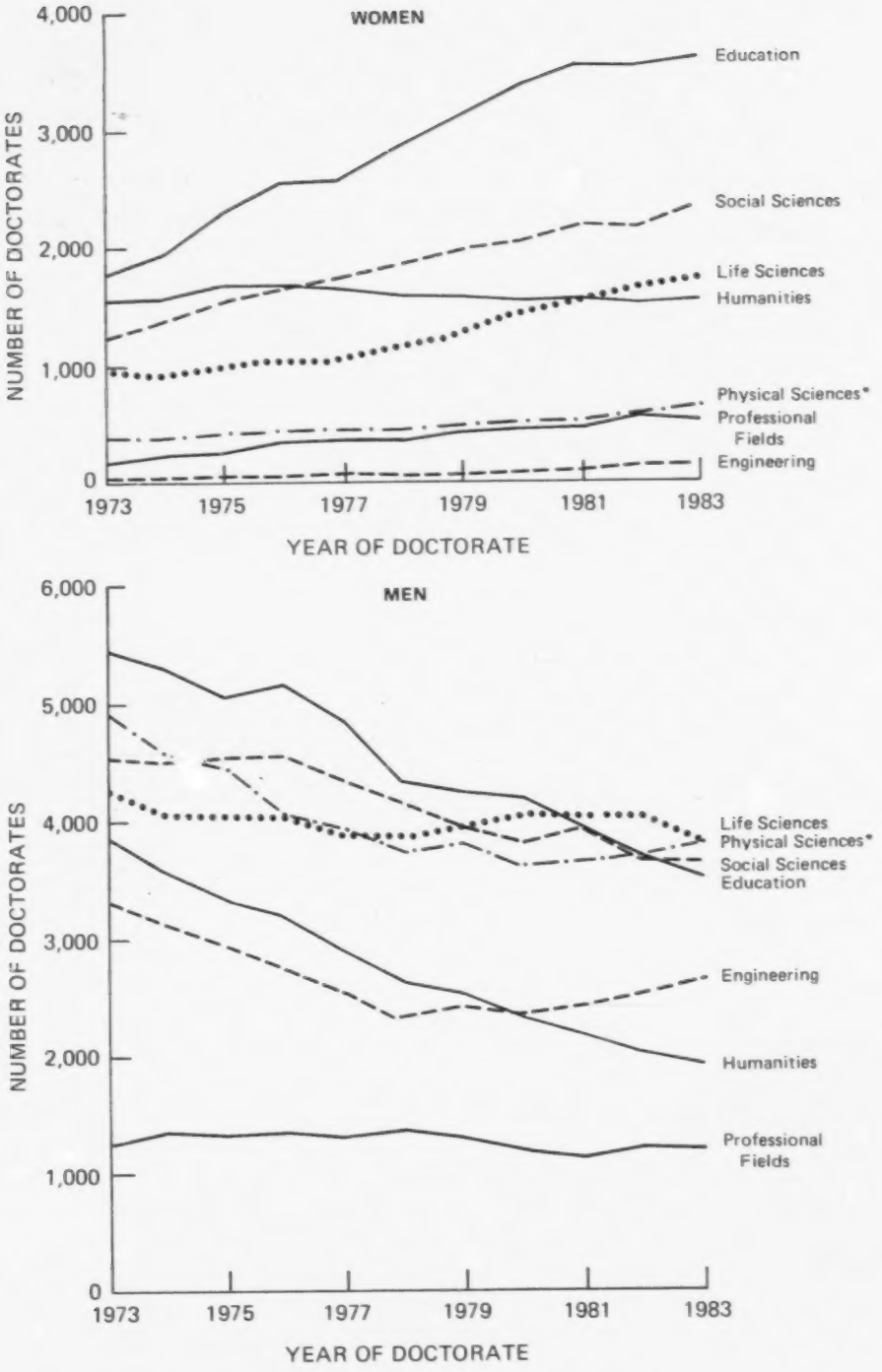
SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

The proportion of doctorates in education has grown steadily from 16 percent in 1960, past the numerical apex in 1976, to account for nearly one quarter of all Ph.D.s in 1980, the largest percentage for any major field that year. In contrast, proportions of humanities doctorates have closely paralleled the numerical figures--peaking at 16 percent in 1973 and now at a low of 11 percent.

Overshadowing these changes in the distribution of the Ph.D. population among fields has been the continued broad changes in the proportion of men and women within fields. While the total number of doctorates has remained relatively constant since 1977, the number of female Ph.D.s has steadily increased, now at 10,485, or 34 percent, of 1983 doctorate recipients. These figures represent all-time highs for women in both number and percent of total doctorate recipients. The number of male doctorate recipients decreased by 294, or 1 percent, from 1982, continuing a slow decline from the peak years in the early 1970s.

Along with these changes in the overall composition of the new doctorate cohort, there have been similar shifts within the broad fields displayed in Table B and Figure 2. The most dramatic of these changes in gender proportions occurred in education in 1983, where for the first time for any major field, the number of women exceeded the number of men. This is the combined result of consistent increases in the number of women and concurrent decreases in the number of men receiving doctorates in education. On the other hand, the increasing percentage of women in the humanities--now at 44 percent--has resulted from a decline in male Ph.D.s coupled with a reasonably stable number of women in that field. The physical, life, and social sciences have all shown increases in the proportion of female Ph.D.s during the last decade.

Figure 2 illustrates the considerable changes in the distribution of male and female doctorate recipients among fields of study even during the 1977 to 1983 period of relative stability in total numbers. For men, two fields--education and the humanities--are notable for their rapid decline from 1973 to 1983, decreasing by 35 and 49 percent, respectively. The number of male Ph.D.s in the physical sciences and engineering, however, appear to have recovered from a period of sharp decreases through the late



*Includes mathematics and computer sciences.

FIGURE 2 Number of doctorates awarded by U.S. universities by broad field and sex, 1973-1983. SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

TABLE B Number of Doctorates Awarded by United States Universities by Broad Field and Sex, 1973-1983

Year	Total		Physical Sciences*		Engineering		Life Sciences		Social Sciences		Humanities		Professional Fields		Education	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
1973	27,670	6,085	4,929	382	3,318	46	4,245	922	4,547	1,211	3,864	1,550	1,251	179	5,455	1,783
1974	26,594	6,453	4,592	384	3,114	33	4,056	906	4,503	1,381	3,594	1,576	1,361	220	5,302	1,939
1975	25,750	7,201	4,454	403	2,950	52	4,031	995	4,544	1,522	3,359	1,687	1,334	241	5,064	2,295
1976	25,262	7,684	4,089	420	2,780	54	4,013	1,013	4,580	1,634	3,208	1,673	1,374	336	5,185	2,540
1977	23,859	7,858	3,949	430	2,569	74	3,892	1,028	4,348	1,725	2,903	1,659	1,312	349	4,870	2,585
1978	22,552	8,321	3,754	439	2,370	53	3,880	1,158	4,178	1,861	2,635	1,596	1,389	352	4,339	2,855
1979	22,300	8,937	3,803	496	2,428	62	3,952	1,271	3,969	1,992	2,547	1,592	1,309	408	4,277	3,108
1980	21,609	9,406	3,609	502	2,389	90	4,046	1,414	3,810	2,045	2,336	1,532	1,202	432	4,203	3,383
1981	21,460	9,885	3,667	503	2,429	99	4,076	1,531	3,945	2,197	2,200	1,548	1,159	459	3,957	3,540
1982	20,999	10,075	3,712	572	2,522	124	4,074	1,635	3,679	2,157	2,049	1,510	1,239	545	3,704	3,528
1983	20,705	10,485	3,807	617	2,656	124	3,823	1,717	3,675	2,380	1,964	1,530	1,224	504	3,543	3,604

*Includes mathematics and computer sciences.

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

1970s with both fields showing steady increases from 1980 to 1983. The number of Ph.D.s in the life sciences fluctuated somewhat, decreasing to 3,880 in 1978, increasing to 4,076 in 1981, and decreasing once more to 3,823 in 1983. Meanwhile, the number of men in the social sciences has declined, with some variability, by about one-fifth during the 1973 to 1983 period.

Education, accounting for over one-third of 1983 female doctorate recipients, continues to be the most populous field for women. Women in the physical, life, and social sciences have consistently increased in number from 1973 to 1983, each field increasing by between 40 and 50 percent over the 11-year period. Although currently below the peak of 1,687 in 1975, the number of women in the humanities has stayed relatively stable during the last 4 years.

COMPARISON OF DOCTORATE PRODUCTION WITH U.S. POPULATION TRENDS

The trend lines displayed in Figure 1 reflect changes in numbers of all doctorate recipients from U.S. universities. Figure 3, however, shows that after the peak years of the mid-1970s, the trend for U.S. citizen doctorate recipients was not one of leveling off, but of decline. This difference between the overall trend and that of U.S. citizens is due to the increasing number of foreign citizens earning doctorates in the United States.

A comparison of changes in the number of U.S. citizen doctorate recipients with related numbers of individuals in the U.S. population provides an indication of the movement of Americans through the graduate education system. Table 5 on page 38 shows the median age at doctorate for U.S. citizens to be 32.9; 85 percent of all U.S. Ph.D. recipients fall

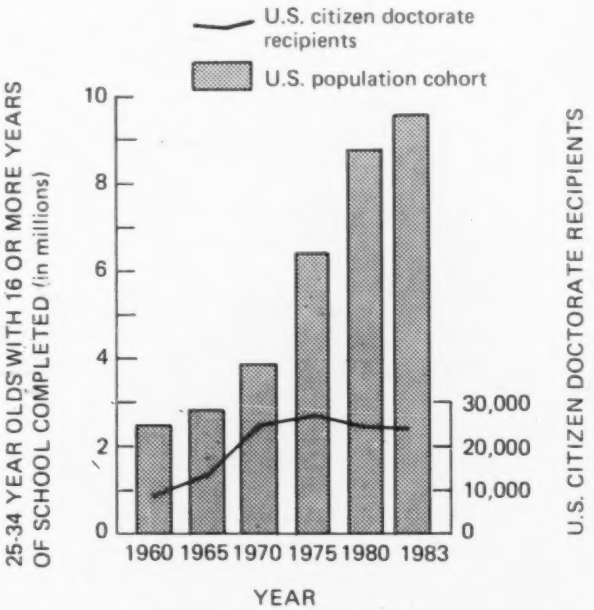


FIGURE 3 Trends in the number of U.S. citizens earning doctorate degrees and comparable U.S. population cohort (25-34 year olds having 16 or more years of school completed), 1960-1983. SOURCES: National Research Council and U.S. Department of Labor, Bureau of the Census.

between the ages of 25 and 34. Accordingly, the census cohort of U.S. citizens between the ages of 25 and 34 having completed more than 16 years of school was selected as the relevant comparison group.

Figure 3 shows that both U.S. citizen Ph.D.s and the population cohort increased in number through the early 1970s, but while the Ph.D. numbers declined after 1975, the U.S. population was experiencing large increases, approximately 5 percent annually. Although the number of U.S. citizens earning doctorates in 1983 was about the same as in 1970, the 25- to 34-year-old cohort more than doubled in size. This movement in opposite directions of the trend lines reflects that a dramatic change has occurred in the participation and/or completion rates of the 25- to 34-year-old cohort in graduate education at the doctoral level. In fact, a far lower proportion of that population in 1983 earned the doctorate than in 1960. Accordingly, any future increases in the number of graduates from doctoral programs cannot be expected solely from population growth, but would have to come from overall increases in proportions of U.S. college graduates going on to earn the doctorate, from attracting underrepresented populations--women and minority group members--into graduate study, or from foreign citizens entering graduate study in the United States.

THE PH.D. COMPONENT OF NEW ENTRANTS TO THE U.S. LABOR MARKET

The preceding tables and the five basic tables beginning on page 24 present data based on the total population of new doctorate recipients. The section that follows refines that total population to those doctorate recipients who plan to enter the U.S. labor market following receipt of the Ph.D. As has been previously mentioned, each years cohort of new doctorates is a truly international group representing some 122 countries. Doctoral education in the U.S. attracts students from nearly every region of the world; in 1983, nearly one-fifth of the doctorate recipients were non-U.S. citizens, with 16 percent, or 4,995, holding temporary (student) visas. Moreover, in fields such as engineering, mathematics, and agriculture, the proportion of non-U.S. citizens is considerably higher--54, 36, and 35 percent, respectively. Engineering is unique among all fields because over two-fifths of the 1983 doctorate recipients in that field were temporary-visa holders.

Accordingly, for the doctorate recipients as a whole and for the above fields in particular, there exist questions as to whether the total population is directly related to the supply of individuals to the U.S. labor market. The section that follows provides descriptive statistics on the fractions of doctorate recipients planning employment or further study in the United States and those planning to leave the U.S. after receipt of the doctorate. A presentation is made of trends in the type of postdoctoral activity--study or employment--and the sector of employment planned by the new doctorate recipients. The postgraduation plans of Ph.D.s entering the U.S. labor force are reviewed in comparison with the total new doctorate population. Finally, a detailed look is taken at engineering--an area of current interest because of the increasing technological nature of the U.S. workplace--to explore the differing characteristics of doctorate recipients among engineering fields.

Defining the New Entrants to the U.S. Labor Force

Items 18 and 22 on the Survey of Earned Doctorates questionnaire request information concerning the career plans of doctorate recipients immediately following graduation. Comparison of the responses of 1980 doctorate recipients with actual employment status in 1981[1] showed that their plans give a reasonably good picture of immediate employment or study activity. This is especially true for the three-fifths of doctorates who report having a signed contract or definite commitment at the time of receipt of the Ph.D.

In addition, information on the location of the planned postdoctoral activity is available through the same series of items. Use of the above data allows the separation of those planning to leave the U.S. following the doctorate from the total population of new Ph.D.s. As previously mentioned, about 60 percent of new doctorate recipients have firm plans at time of doctorate, and for those individuals location data are readily available. For Ph.D.s whose plans are not settled, however, location data are less complete. Accordingly, the

[1]National Research Council, Summary Report 1982: Doctorate Recipients From United States Universities, National Academy Press, Washington, D.C., 1983, pp. 22-24.

removal of individuals reporting plans for leaving the U.S. after receipt of the doctorate from the total doctoral pool leaves 9,201 individuals not reporting location and 19,515 reporting U.S. location. Of the 9,201 not reporting postgraduation location, three-quarters were either U.S. citizens or non-U.S. citizens with permanent (immigrant) visas, populations highly likely to remain in the U.S. after receipt of the doctorate.

The Survey of Doctorate Recipients (SDR), also conducted by the National Research Council, affords an opportunity to check the actual location of those 9,201 individuals in the year following receipt of the doctorate. The SDR is a longitudinal survey of the career patterns of doctoral scientists, engineers, and humanists in the U.S. Each year approximately 12 percent of the doctorate recipients in those fields become part of the SDR survey sample and are followed-up with a survey conducted biennally. Information from the SDR on 1983 employment location for 1982 doctorate recipients not reporting location plans yields the following figures: 99 percent of U.S. citizens and non-U.S. citizens with permanent visas remained in the U.S. in the year following the doctorate; 74 percent of Ph.D.s in other citizenship categories--non-U.S. with temporary visas and citizenship not reported--remained in the U.S. in 1983.[2]

The above figures indicate that over 90 percent of doctorate recipients not reporting location in the Survey of Earned Doctorates remain in the U.S. for employment immediately following the doctorate. Accordingly, this group has been included in the analysis that follows as part of the cohort of new doctorates entering the domestic labor market. It is estimated that the inclusion of this group of Ph.D. recipients results in the overstating of the "new entrants" population by about 2 percent.[3]

As mentioned earlier, the percentages of U.S. citizens and non-U.S. citizens holding permanent visas and remaining in the U.S. after receipt of the Ph.D. have been extremely high in recent years--98 and 93 percent, respectively. Table C and Figure 4 show also the remarkable stability of those percentages over time. In fact, over the quarter-century from 1959 to 1983, the percentage of U.S. citizens

TABLE C Citizenship Status of Doctorate Recipients and Percentage Entering the U.S. Labor Force, 1959-1983

	U.S. Citizens		Non-U.S. Citizens			
			Perm. Visa		Temp. Visa	
Year	No.	%	No.	%	No.	%
1959	8,066	97.2	292	92.1	733	43.3
1961	8,985	96.6	232	90.1	1,050	46.8
1963	10,986	96.5	293	91.8	1,251	50.1
1965	13,869	96.4	463	92.2	1,753	50.8
1967	17,173	96.8	732	91.8	2,048	55.4
1969	21,668	96.7	1,108	93.1	2,334	51.9
1971	26,840	96.3	1,825	91.5	2,690	45.2
1973	27,915	97.5	1,996	92.2	3,174	46.7
1975	27,081	97.6	1,714	92.6	3,536	52.3
1977	26,120	97.9	1,368	93.2	3,448	53.2
1979	25,464	98.0	1,320	93.9	3,587	52.5
1981	25,059	97.8	1,281	93.8	3,940	54.7
1983	24,292	98.0	1,272	93.2	4,495	57.8

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

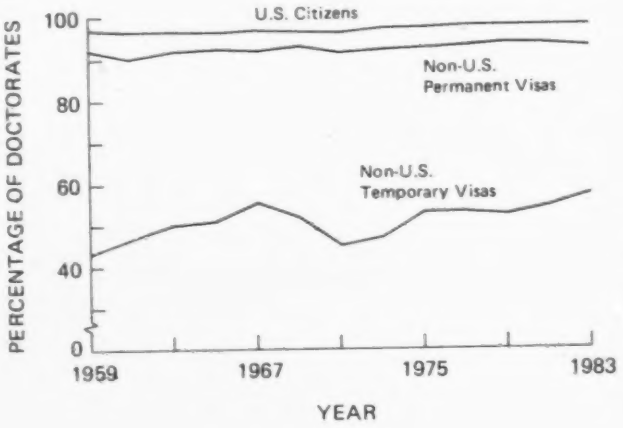


FIGURE 4 Proportion of doctorates entering the U.S. labor force by citizenship, 1959-1983. SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

[2]For temporary (student) visa holders, the employment situation in the year following the doctorate can be dependent on U.S. immigration regulations. While the temporary-visa holder is generally able to remain in the U.S. for practical training for one year following graduation under visa status J (exchange visitor), remaining in the U.S. after that period requires the more difficult process of obtaining an H (temporary worker) visa. Thus, although many temporary-visa holders may stay in the U.S. immediately following graduation and be classified as new entrants to the labor force in this report, there may be a substantial out-migration of these same individuals a year later.

[3]The exclusion of this group from the new entrant population would result in an underestimate of approximately 26 percent.

entering the domestic labor force has varied less than 2 percent, remaining in the 96 to 98 percent range over the entire period. Permanent-visa holders show a similarly consistent pattern, with between 90 and 94 percent of them remaining in the U.S. following the Ph.D.

In contrast, the trend for temporary-visa holders has been for a generally increasing, although somewhat variable, proportion to enter the U.S. labor force following graduation. The nearly cyclical pattern for temporary-visa holders shows increases from 43 to 55 percent from 1959 to 1967, marked decreases to 1971, and general increases from 1971 to the current level of 58 percent.[4]

Citizenship Characteristics of New Entrants

The three tables that follow apply the definition of "U.S. labor-force entrants" developed in the preceeding section to the population of new doctorate recipients. Displayed in Table D are data on the trends in citizenship status of new entrants by major field of study during the past 25 years. For the total new entrant group, the relative proportions of U.S. citizens and non-U.S. citizens have remained fairly stable, with some decreases in the percentage of U.S. citizens since 1977. Among non-U.S. citizens, the proportion of permanent-visa holders has remained comparatively stable during this period, increasing from 3 percent in 1959 to 6 percent in 1973 but then decreasing to 4 percent in 1983. Temporary-visa holders have shown variable increases throughout the period, from 4 percent in 1959 to 9 percent in 1983.

The peak for permanent-visa holders occurred in the early 1970s when they accounted for some 6 percent of all new Ph.D.s entering the U.S. labor force. In physical science fields--physics, chemistry, and mathematics--the peak years for permanent-visa doctorate recipients were between 1973 and 1975, after which their proportions declined while Ph.D.s with temporary visas showed the most marked increases. Figure 5 shows that in 1983--next to engineering--mathematics and physics were the fields with the largest proportion of

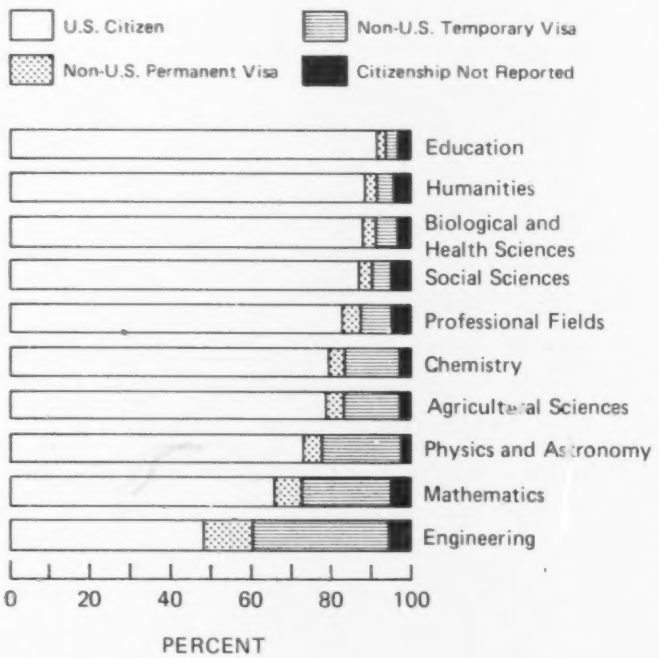


FIGURE 5 Citizenship status of doctorate recipients entering the U.S. labor force by field of doctorate, 1983. SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

[4]These trends do not appear to be the result of changes in the relative field distribution of doctorate recipients over time. A check was made of possible effects of changing field distributions over the 25-year period by using the field distribution in 1971 as the index year and recalculating the data in Table C based on constant field proportions. A plot of the new data derived from controlling for field distribution was then made, resulting in a graph nearly identical to that of Figure 4. Thus, the trends that appear on Figure 4 can be seen as overall changes, independent of the kind of fluctuations in field distribution described in the text accompanying Figures 1 and 2.

TABLE D Doctorate Recipients Entering the U.S. Labor Force by Citizenship and Field of Study, 1959-1983

Citizenship Status	Year of Doctorate												
	1959	1961	1963	1965	1967	1969	1971	1973	1975	1977	1979	1981	1983
Total All Fields	9,213	10,413	12,728	16,340	20,403	25,743	31,867	33,755	32,951	31,717	31,237	31,345	31,190
Total, U.S. Location	8,517	9,520	11,678	14,922	18,875	23,833	29,254	31,189	30,508	29,440	28,946	28,925	28,716
U.S. Citizens	92.0	91.1	90.8	89.6	88.1	88.0	88.4	87.2	86.6	86.8	86.3	84.8	82.9
Non-U.S. Perm. Visas	3.2	2.2	2.3	2.9	3.6	4.3	5.7	5.9	5.2	4.3	4.3	4.2	4.1
Non-U.S. Temp. Visas	3.9	5.2	5.4	6.0	6.0	5.1	4.2	4.7	6.2	6.2	6.5	7.5	9.1
Cit. Not Reported	.9	1.5	1.5	1.6	2.3	2.6	1.7	2.1	2.0	2.6	3.0	3.6	3.9
Physics and Astronomy	516	597	817	1,046	1,312	1,461	1,738	1,589	1,300	1,150	1,108	1,015	1,042
Total, U.S. Location	473	538	748	954	1,209	1,325	1,524	1,436	1,176	1,044	1,010	925	922
U.S. Citizens	87.5	86.4	85.4	85.2	82.5	85.1	82.3	79.5	75.5	76.3	76.4	73.4	72.3
Non-U.S. Perm. Visas	4.2	2.4	2.7	3.2	5.0	4.2	7.1	7.8	8.5	7.6	6.5	5.6	5.1
Non-U.S. Temp. Visas	6.6	8.6	9.6	9.6	9.1	7.2	7.7	10.9	14.1	13.9	14.1	16.9	19.7
Cit. Not Reported	1.7	2.6	2.3	1.9	3.4	3.5	2.9	1.9	1.9	2.2	3.0	4.1	2.8
Chemistry	1,054	1,150	1,288	1,444	1,773	1,967	2,211	1,855	1,776	1,571	1,566	1,612	1,759
Total, U.S. Location	980	1,073	1,203	1,335	1,643	1,841	2,000	1,728	1,652	1,481	1,481	1,517	1,648
U.S. Citizens	91.5	88.0	88.3	88.2	86.6	86.8	85.6	81.1	80.6	81.5	81.7	78.9	79.4
Non-U.S. Perm. Visas	2.8	2.7	1.8	2.5	3.0	4.7	7.8	10.0	7.4	6.8	6.3	6.1	4.1
Non-U.S. Temp. Visas	5.2	8.0	7.8	8.5	9.2	6.6	5.4	6.9	9.3	9.8	10.5	12.1	13.4
Cit. Not Reported	.5	1.3	2.1	.9	1.2	2.0	1.4	1.9	2.6	2.0	1.6	2.9	3.1
Mathematics	289	332	483	685	830	1,070	1,238	1,232	1,147	933	769	728	701
Total, U.S. Location	271	305	451	639	783	999	1,150	1,100	1,033	852	708	650	619
U.S. Citizens	88.2	87.2	86.7	88.6	85.3	86.7	85.6	82.5	80.1	79.7	76.7	72.8	65.4
Non-U.S. Perm. Visas	3.3	2.3	2.0	2.2	3.1	4.5	5.1	6.7	7.0	6.3	6.9	6.2	6.8
Non-U.S. Temp. Visas	6.3	7.5	9.3	6.9	9.3	7.0	8.3	8.4	10.4	11.4	14.0	18.8	22.3
Cit. Not Reported	2.2	3.0	2.0	2.3	2.3	1.8	1.0	2.4	2.6	2.6	2.4	2.3	5.5
Engineering	699	940	1,357	2,074	2,604	3,265	3,498	3,364	3,002	2,643	2,490	2,528	2,780
Total, U.S. Location	643	883	1,238	1,891	2,419	3,054	3,147	3,030	2,713	2,392	2,214	2,220	2,391
U.S. Citizens	80.7	81.9	83.4	82.0	79.3	77.6	74.9	69.5	61.9	60.6	57.2	52.0	47.7
Non-U.S. Perm. Visas	9.2	5.3	5.0	5.6	7.6	10.1	15.1	17.1	15.1	13.2	14.1	13.2	12.8
Non-U.S. Temp. Visas	9.6	12.1	10.5	10.3	11.5	10.1	9.0	12.0	21.0	23.2	26.0	29.7	34.2
Cit. Not Reported	.5	.7	1.1	2.1	1.6	2.3	1.0	1.4	2.0	3.0	2.7	5.1	5.4
Biological and Health Sciences	1,239	1,345	1,617	2,108	2,537	3,389	4,195	4,134	3,959	3,995	4,214	4,457	4,368
Total, U.S. Location	1,092	1,148	1,427	1,814	2,280	3,053	3,825	3,801	3,629	3,708	3,896	4,136	4,075
U.S. Citizens	90.3	87.7	88.3	86.5	86.1	87.2	87.4	86.5	86.2	86.5	88.4	89.1	87.9
Non-U.S. Perm. Visas	3.8	2.7	2.5	3.0	3.7	4.2	5.5	6.8	5.9	5.4	4.1	3.6	3.4
Non-U.S. Temp. Visas	5.5	8.2	8.8	9.5	8.5	7.1	4.6	4.5	5.3	5.3	4.6	4.7	6.0
Cit. Not Reported	.5	1.4	.4	.9	1.7	1.5	2.5	2.2	2.6	2.8	2.9	2.6	2.8

NOTE: Details may not add to totals because of rounding.

TABLE D (continued)

Citizenship Status	Year of Doctorate												
	1959	1961	1963	1965	1967	1969	1971	1973	1975	1977	1979	1981	1983
Agricultural Sciences	342	438	466	576	606	815	1,073	1,033	1,067	925	1,009	1,150	1,172
Total, U.S. Location	282	354	387	445	454	647	830	795	820	695	763	860	889
U.S. Citizens	89.4	91.5	91.2	82.7	86.6	80.5	81.2	78.2	77.4	78.8	78.5	76.7	78.5
Non-U.S. Perm. Visas	1.8	1.1	1.6	3.1	1.1	4.2	8.2	9.8	8.5	3.9	4.3	4.7	4.3
Non-U.S. Temp. Visas	8.9	7.1	7.0	13.0	12.1	14.5	10.1	11.4	13.3	15.7	14.3	15.3	13.7
Cit. Not Reported	.0	.3	.3	1.1	.2	.8	.5	.5	.7	1.6	2.9	3.3	3.5
Social Sciences	1,644	1,778	2,027	2,327	3,102	3,984	5,189	5,758	6,066	6,073	5,961	6,142	6,055
Total, U.S. Location	1,537	1,613	1,850	2,124	2,835	3,658	4,758	5,284	5,605	5,643	5,576	5,767	5,716
U.S. Citizens	92.1	93.8	91.6	90.7	89.5	90.0	90.6	89.8	90.2	90.1	89.4	88.5	86.9
Non-U.S. Perm. Visas	3.8	2.0	2.9	3.0	3.8	3.5	4.5	4.0	3.4	3.1	3.0	3.1	3.2
Non-U.S. Temp. Visas	2.9	2.2	3.2	4.6	4.0	3.9	3.4	4.0	4.3	4.1	4.1	4.4	5.1
Cit. Not Reported	1.2	1.9	2.3	1.6	2.8	2.7	1.6	2.1	2.2	2.8	3.6	4.0	4.8
Humanities	1,424	1,624	1,842	2,530	3,087	3,788	4,648	5,414	5,046	4,562	4,139	3,748	3,494
Total, U.S. Location	1,351	1,537	1,734	2,381	2,931	3,585	4,350	5,113	4,792	4,342	3,945	3,515	3,292
U.S. Citizens	95.4	93.6	94.9	93.3	91.0	91.3	92.1	91.5	91.1	90.9	91.0	89.3	88.6
Non-U.S. Perm. Visas	2.4	2.0	1.4	2.5	3.2	4.0	4.6	4.3	4.4	3.5	3.7	4.0	3.3
Non-U.S. Temp. Visas	.7	1.9	1.6	2.2	2.4	1.7	1.7	2.0	2.3	2.6	2.1	2.8	4.0
Cit. Not Reported	1.5	2.6	2.1	2.0	3.3	3.0	1.5	2.2	2.2	3.0	3.3	3.9	4.1
Professional Fields	220	280	360	434	628	743	975	1,430	1,575	1,661	1,717	1,618	1,728
Total, U.S. Location	204	256	320	388	576	681	879	1,306	1,435	1,501	1,541	1,473	1,581
U.S. Citizens	92.6	92.6	91.3	91.0	84.2	83.8	86.3	87.5	88.9	89.1	87.9	85.2	82.6
Non-U.S. Perm. Visas	2.9	1.2	3.4	3.6	3.8	3.8	5.1	4.7	4.5	4.2	4.2	5.0	4.9
Non-U.S. Temp. Visas	2.9	4.3	2.2	3.4	5.7	3.5	4.1	4.5	4.0	4.4	5.6	5.0	8.0
Cit. Not Reported	1.5	2.0	3.1	2.1	6.3	8.8	4.4	3.2	2.6	2.3	2.2	4.9	4.5
Education	1,553	1,679	2,137	2,736	3,481	4,659	6,435	7,238	7,359	7,455	7,385	7,497	7,147
Total, U.S. Location	1,485	1,597	2,032	2,619	3,353	4,460	6,188	6,942	7,057	7,121	7,001	7,081	6,739
U.S. Citizens	98.2	97.7	97.5	96.4	96.7	94.7	96.7	96.0	95.6	94.5	93.1	92.2	91.7
Non-U.S. Perm. Visas	.3	.6	.7	.8	.9	1.3	1.6	1.3	1.4	1.3	1.5	1.6	1.8
Non-U.S. Temp. Visas	1.2	1.3	1.2	1.4	.9	1.0	1.1	1.1	1.7	1.9	2.3	2.7	3.2
Cit. Not Reported	.2	.4	.6	1.4	1.6	3.0	.6	1.7	1.3	2.4	3.1	3.5	3.2

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

non-U.S. citizens remaining in the U.S. for employment or study after receipt of the Ph.D. In all three physical science fields, the percentage of temporary-visa holders nearly doubled during the last 10 years, with the greatest increases in mathematics, where 22 percent of the 1983 doctorates entering the U.S. labor force held temporary visas.

During the 1959 to 1983 period, engineering has consistently been the field with the greatest proportion of non-U.S. citizens remaining in the U.S. following the Ph.D. While in the middle of this period the majority of the non-U.S. citizens held permanent-visa status, the typical pattern has been for temporary-visa holders to predominate. Nevertheless, engineering continues to have the largest fraction of permanent-visa holders of all Table D fields. The percentage of temporary-visa Ph.D.s has shown a strong rise during the past decade, with 34 percent of the 1983 new entrants holding student visas. Currently, engineers entering the domestic labor market are about evenly split between U.S. and non-U.S. citizens.

Doctorate recipients in biological and health science fields entering the U.S. labor pool have the lowest percentage of non-U.S. citizens of all science fields. The proportion of foreign citizens--which was 9 percent in 1983, the lowest level during the twenty-five year period--has varied by only 4 percentage points, from 9 to 13 percent, during that time.

Agricultural sciences is singular among the science fields because the citizenship patterns of the new doctorate population and the cohort entering the U.S. labor force differ so markedly. For example, Table 2 on page 30 shows that 35 percent of the 1983 Ph.D.s in agriculture were non-U.S. citizens, whereas only 19 percent were new labor-market entrants. This difference is the result of the higher propensity of foreign agriculture Ph.D.s to return home after receipt of the doctorate, particularly those holding temporary visas. This is in contrast to engineering and mathematics, for instance, where temporary-visa Ph.D.s tend to remain in the U.S. for postdoctoral study or employment.

The social sciences, humanities, and professional fields all experienced similar citizenship patterns during the 1959 to 1983 period, with high and generally stable proportions of U.S. citizens and a more even distribution of permanent and temporary-visa holders within the non-U.S. cohort. In fact the humanities is unique among the Table D fields in that the majority of its non-U.S. citizen doctorate recipients have been holders of permanent rather than temporary visas.

Postgraduation Employment and Study Plans

The 1982 Summary Report[5] had as its theme the changing expectations of new doctorate recipients for employment or further study. The statistical data presented in that report highlighted two interrelated trends: first, the rise in academic employment opportunities through the 1960s and subsequent decline from the mid-1970s and second, the shift of science doctorates toward taking a postdoctoral study appointment rather than securing an academic position immediately following receipt of the Ph.D. Table E and Figure 6 display statistics on the postgraduation plans of 1969 to 1983 doctorate recipients expected to enter the U.S. labor force. This table provides, then, both a picture of the initial career plans of the new entrants cohort and a means to compare this group with the total doctoral population.

Table E shows that the proportion of new entrants still seeking appointments at the time of doctorate grew steadily throughout most of the 1970s, from 19 percent in 1966 to 27 percent in 1977, and then decreased somewhat to 24 percent in 1980 with a subsequent return to the 27 percent level in 1983. The proportion seeking postdoctoral study has remained in the 3 to 5 percent range, while the percentage seeking employment has risen from 15 to 22 percent during the 15-year period.

The percentage of Ph.D.s who had secured postdoctoral appointments increased slightly, from the 11 percent level in the early 1970s to 14 percent in 1983, while the proportions with definite employment commitments in academe decreased markedly during the same years, from 47 percent in 1969 to 32 percent in 1983. Business and industry employment dipped from 10 percent in 1969 to 6 percent in 1972 but has since recovered to 11 percent in 1983. Commitments for other types of employment, including government,

[5] Summary Report 1982, pp. 8-25.

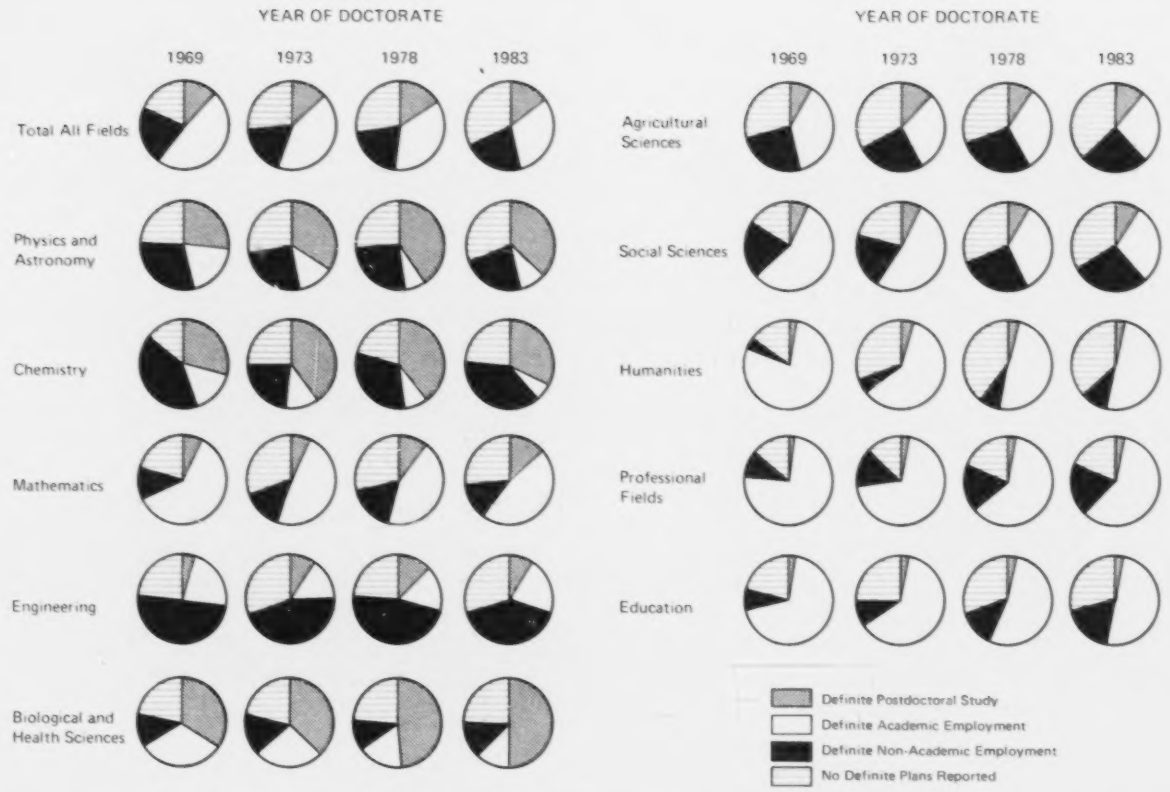


FIGURE 6 Postgraduation plans of doctorate recipients entering the U.S. labor force by field of doctorate, 1969-1983. SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

remained relatively steady during this period.

Among the physical science fields shown in Table E, physics and astronomy Ph.D.s were least likely to have firm commitments for employment or study at time of doctorate during the 15-year period (29 percent in 1983, nearly as high as in 1976, when 30 percent of new physics and astronomy Ph.D.s had not secured employment or study positions). Ph.D.s in physics and astronomy expecting to enter the U.S. labor force in 1983 had the highest percentages for securing postdoctoral study appointments since the late 1970s (34 percent in 1983, up from 25 percent in 1969). At the same time, the percentage of physicists securing academic appointments declined from 19 percent in 1969 to a low of 7 percent in 1981, with a small increase to 9 percent in 1983. Perhaps in physics, as in chemistry and the biological sciences, a new career pattern has emerged, whereby a postdoctoral study appointment has become the first step on the ladder to a faculty position.

Less than 6 percent of new chemistry Ph.D.s held firm commitments for academic positions--the lowest proportion for all Table E fields. At the same time, the percentage of those securing postdoctoral study positions has remained in the 29 to 32 percent range, while the number of those still seeking such positions has increased from 17 percent in 1981 to 23 percent in 1983, about as high as the 1973 peak. The proportion of new Ph.D. chemists finding employment in business and industry in 1983 was 31 percent, a sharp decline from the 40 percent finding similar employment in 1982.

Between 21 and 25 percent of individuals earning the doctorate in mathematics in the 1980s were seeking positions at time of doctorate, a decrease from the higher levels of the 1970s. Since the mid-1970s slightly more than two-fifths of each years doctorate cohort has secured academic appointments, and during the same period the percentage with postdoctoral study appointments has increased from roughly 5 percent to 13 percent in 1983.

Engineering and agricultural sciences have the highest proportions of doctorate recipients without firm plans at the time of receipt of the doctorate;

in 1983 about one-third of the Ph.D.s in agriculture and slightly more than one-quarter of the engineers reported that they were still seeking appointments as their doctoral studies were completed. Figures in these fields reflect the large non-U.S. component whose plans are more likely to be indefinite at time of doctorate than those of their U.S. counterparts. Engineering Ph.D.s find employment in business and industry in larger proportions than in any other field, with somewhat more than one-third of the engineers securing jobs in that section, although declining to 30 percent in 1983. After a period of decline in the early 1970s, the proportion of engineering doctorates finding academic positions stabilized in the 15 to 16 percent range, rising to 18 percent in 1983.

For doctorate recipients in the biological and health sciences expected to enter the U.S. labor force, the percentages of those still seeking appointments during the last few years have been nearly as high as the 24 percent peak in 1977. About an equal proportion of biochemists sought study as sought employment in 1983. The rapid growth of the 1960s and 1970s in the proportion of bioscience Ph.D.s going on to postdoctoral study appears to have stabilized in recent years, with nearly one-half of the new doctorates securing postdoctoral appointments in 1983. At the same time, academic employment following receipt of the doctorate has declined from 31 percent in 1959 to 13 percent in 1982 and 1983. The level of employment in other sectors, including business and industry, has remained stable in the 1980s.

As previously mentioned, nearly one-third of the 1983 agricultural science Ph.D.s were seeking appointments at time of doctorate, with 25 percent of the total seeking employment. Proportions finding employment positions in academe have declined during the 15-year period, decreasing in recent years from 33 percent in 1980 to 25 percent in 1983. There have been some recent compensatory increases in levels of employment in business and industry with the 15 percent securing employment in that sector in 1983 nearly equaling the previous peak percentage in 1978.

The percentage of social science Pn.D.s still seeking positions at time of doctorate increased from 16 percent in 1969 to 30 percent in 1983, while the number seeking positions nearly tripled from 589 to 1,738. During the same period, the percentage securing academic positions declined from 54 to 28 percent. There have been increases, however, in the proportions of social scientists finding employment in the business and non-profit sectors.

A similar pattern has occurred in the humanities, where the proportion of new entrants to the U.S. labor force securing academic positions has declined over the period to a level of 46 to 47 percent in recent years. The percentages seeking appointments rose from 14 percent in 1969 to 36 percent in 1976 and subsequently leveled off to 34 percent in 1983. As in the social sciences, humanities doctorate recipients have not found employment in non-academic sectors in large numbers, although there have been some modest increases in percentages securing such employment. Only about 10 percent of the Ph.D.s graduating in the 1980s have definite plans for employment outside academe.

In contrast, doctorate recipients in the professional fields--business administration, communications, social work, theology--have enjoyed consistently healthy prospects for employment after the doctorate. During the 1969 to 1983 period, the percentages still seeking positions at time of doctorate have been the lowest of the Table E fields; and although there have been some modest decreases over time, more than one-half of the new Ph.D.s find immediate employment in academic settings.

As in the professional fields, employment for education doctorate recipients centers around the academic sector, with about one-half of the 1983 graduates securing academic positions and considerably smaller proportions finding employment in private industry or government.

TABLE E Postgraduation Plans of Doctorate Recipients Entering the U.S. Labor Force by Field of Doctorate, 1969-1983

Postgraduation Plans	Year of Doctorate														
	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Total Doctorates	23833	27261	29254	30295	31189	30614	30508	30516	29440	28719	28946	28770	28925	28685	28716
Seeking Appointment	18.5	19.6	20.4	22.1	23.8	24.8	25.6	26.6	27.0	26.4	26.1	24.4	25.0	25.7	27.1
Postdoctoral Study	3.1	2.9	3.3	3.8	4.2	4.4	4.3	4.5	4.9	4.9	4.4	4.7	5.0	5.1	5.4
Employment	15.4	16.7	17.1	18.4	19.6	20.4	21.3	22.1	22.1	21.6	21.7	19.7	20.1	20.6	21.6
Definite Plans	76.1	75.5	73.5	70.6	69.8	65.5	67.6	66.3	65.3	65.8	66.7	69.4	68.6	67.3	66.2
Postdoctoral Study	10.2	11.0	10.8	11.0	11.0	9.9	11.2	11.8	12.0	13.1	13.3	13.7	13.3	13.4	13.8
Employment	66.0	64.5	62.7	59.6	58.7	55.7	56.4	54.5	53.3	52.7	53.4	55.7	55.3	53.8	52.4
Academe	46.7	45.8	45.9	43.9	42.0	38.5	38.3	37.5	35.6	34.1	33.3	34.3	33.5	31.8	31.9
Business/Industry	10.3	9.7	7.4	6.0	6.8	7.4	7.6	6.7	7.3	8.3	9.3	10.2	10.8	11.8	10.5
Government	5.7	5.7	6.5	6.9	6.7	6.6	7.1	6.8	6.9	6.4	6.8	6.8	6.9	5.9	5.5
Nonprofit	2.1	2.2	2.1	2.2	2.6	2.7	3.0	3.0	3.2	3.5	3.5	3.9	3.6	3.9	3.6
No Report	1.1	1.1	.8	.5	.5	.4	.5	.4	.4	.4	.5	.5	.6	.5	.7
Plans Not Reported	5.3	4.8	6.1	7.3	6.4	9.7	6.7	7.1	7.6	7.7	7.2	6.2	6.4	7.0	6.7
Physics & Astronomy	1325	1512	1524	1439	1436	1197	1176	1119	1044	995	1019	899	925	933	922
Seeking Appointment	22.5	23.8	25.8	24.0	26.7	29.3	29.3	29.9	27.2	23.7	21.7	20.7	22.6	25.4	29.0
Postdoctoral Study	8.5	8.3	9.1	9.2	11.8	13.0	13.7	13.9	13.3	11.4	9.4	10.0	10.2	13.3	12.7
Employment	14.0	15.5	16.7	14.8	15.0	16.3	15.6	16.0	13.9	12.4	12.3	10.7	12.4	12.1	16.3
Definite Plans	70.7	69.8	64.0	65.7	64.3	60.2	62.2	59.4	61.8	68.8	70.4	71.7	70.2	66.9	65.6
Postdoctoral Study	24.8	26.5	26.4	30.2	30.8	30.8	33.3	33.0	32.8	37.1	37.0	37.4	34.2	32.3	34.3
Employment	46.0	43.3	37.6	35.5	33.4	29.4	28.9	26.5	29.0	31.8	33.4	34.4	36.0	34.6	31.3
Academe	19.3	19.2	18.0	16.5	11.8	9.8	8.8	10.0	10.5	8.0	8.2	8.0	7.1	7.9	9.2
Business/Industry	15.5	13.0	10.7	6.7	9.5	8.6	10.3	8.9	9.5	15.3	16.6	18.1	21.3	19.6	15.7
Government	7.8	8.1	7.2	11.1	10.8	9.8	8.6	6.8	8.3	7.4	7.1	7.6	6.9	6.6	6.1
Nonprofit	2.4	2.6	1.4	1.1	1.0	1.1	.9	.5	.6	.8	.8	.6	.4	.4	.3
No Report	.8	.3	.2	.1	.2	.2	.3	.2	.1	.2	.6	.1	.2	.0	.0
Plans Not Reported	6.8	6.4	10.2	10.3	9.0	10.4	8.4	10.6	11.0	7.4	7.9	7.6	7.2	7.7	5.4
Chemistry	1841	2085	2000	1817	1728	1670	1652	1505	1481	1452	1481	1444	1517	1576	1648
Seeking Appointment	15.8	17.9	19.4	23.4	24.0	22.8	20.8	22.1	22.6	21.2	17.7	19.1	17.3	16.4	22.5
Postdoctoral Study	6.1	5.9	6.9	10.7	11.6	12.0	9.7	11.6	11.3	10.8	8.1	9.9	8.4	7.7	10.6
Employment	9.6	12.1	12.5	12.7	12.4	10.8	11.1	10.5	11.3	10.4	9.6	9.2	8.9	8.7	12.0
Definite Plans	80.4	78.7	74.3	69.7	69.3	69.6	72.0	73.0	71.6	72.6	78.2	76.6	76.7	77.7	71.8
Postdoctoral Study	26.7	29.2	33.7	38.7	37.3	32.5	36.2	39.5	35.7	35.3	35.4	31.7	28.9	30.3	31.1
Employment	53.7	49.5	40.6	30.9	32.1	37.1	35.8	33.5	36.0	37.3	42.8	44.9	47.8	47.5	40.7
Academe	14.9	14.2	13.3	13.0	10.9	9.9	7.3	8.4	8.3	7.4	6.3	5.6	4.9	5.5	5.8
Business/Industry	32.8	29.3	21.9	11.3	16.6	22.1	24.7	20.6	23.4	26.6	31.3	35.4	38.4	39.5	31.4
Government	4.6	4.1	4.2	5.7	4.1	4.3	3.3	3.5	3.6	2.8	4.3	3.1	3.4	2.0	2.5
Nonprofit	.8	1.1	1.1	.7	.5	.6	.6	.9	.7	.6	.6	.6	.9	.3	.7
No Report	.6	.7	.3	.2	.1	.2	.0	.1	.0	.0	.3	.2	.2	.1	.2
Plans Not Reported	3.8	3.4	6.4	6.9	6.7	7.6	7.2	5.0	5.7	6.2	4.1	4.3	5.9	5.8	5.7
Mathematics	999	1133	1150	1155	1100	1099	1033	901	852	776	708	681	650	649	619
Seeking Appointment	19.6	20.5	22.9	25.6	28.8	33.4	28.6	29.4	30.3	26.5	26.0	20.6	22.2	24.7	22.3
Postdoctoral Study	2.1	1.6	2.3	3.5	2.7	4.4	3.2	4.2	4.3	3.4	4.5	4.0	5.2	4.6	5.0
Employment	17.5	18.9	20.6	22.2	26.1	29.0	25.4	25.2	25.9	23.2	21.5	16.6	16.9	20.0	17.3
Definite Plans	76.6	74.3	71.3	68.6	64.1	57.8	63.4	64.4	61.7	67.0	66.4	72.4	71.8	68.6	68.8
Postdoctoral Study	6.2	4.6	4.2	5.0	5.0	4.3	5.4	4.9	5.8	8.0	6.1	8.4	9.4	11.6	13.2
Employment	70.4	69.7	67.1	63.5	59.1	53.5	58.0	59.5	56.0	59.0	60.3	64.0	62.5	57.0	55.6
Academe	58.6	55.1	56.8	49.9	45.1	41.2	43.3	46.2	40.6	42.7	42.7	46.3	43.8	41.9	43.3
Business/Industry	6.6	8.9	6.1	7.3	8.0	7.9	8.5	7.4	10.1	11.1	10.7	13.2	13.5	9.4	7.6
Government	3.7	3.4	3.0	5.3	5.2	3.6	5.4	5.2	4.8	4.5	5.8	3.5	4.3	4.9	3.2
Nonprofit	1.1	1.9	.7	.9	.8	.6	.8	.2	.5	.8	.8	.6	.5	.5	.8
No Report	.4	.4	.5	.3	.0	.1	.0	.4	.0	.0	.3	.4	.3	.3	.6
Plans Not Reported	3.8	5.2	5.8	5.8	7.1	8.8	8.0	6.2	8.0	6.4	7.6	7.0	6.0	6.8	8.9

NOTE: Details may not add to totals because of rounding.

TABLE E (continued)

Postgraduation Plans	Year of Doctorate														
	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Engineering	3054	3181	3147	3148	3030	2853	2713	2540	2392	2172	2214	2216	2220	2350	2391
Seeking Appointment	22.8	24.7	27.1	27.5	27.6	26.5	27.3	28.4	26.4	24.3	22.6	20.4	24.1	27.2	27.6
Postdoctoral Study	2.2	2.9	4.4	5.3	5.3	5.3	5.8	5.7	6.1	6.1	4.9	4.7	5.4	5.7	6.5
Employment	20.6	21.8	22.7	22.1	22.3	21.2	21.5	22.8	20.4	18.2	17.8	15.7	18.7	21.5	21.1
Definite Plans	73.8	72.4	68.3	66.6	67.7	63.4	66.4	65.4	67.2	68.0	71.5	72.6	68.6	64.6	63.2
Postdoctoral Study	3.9	4.7	5.4	7.6	8.5	6.2	7.2	9.6	8.9	10.7	8.5	8.9	7.6	7.3	8.3
Employment	69.9	67.7	62.8	59.0	59.2	57.2	59.2	55.7	58.3	57.3	62.9	63.6	60.9	57.3	55.0
Academe	21.7	18.9	19.2	15.6	14.8	11.9	14.5	14.9	15.3	14.5	16.3	16.5	16.7	14.5	18.4
Business/Industry	35.8	35.8	29.2	28.0	30.5	32.4	31.3	28.7	29.8	32.4	35.1	35.9	35.1	34.8	29.6
Government	8.4	9.1	11.8	13.5	11.5	10.3	11.7	10.4	11.5	8.9	9.6	9.8	7.6	6.6	5.9
Nonprofit	2.9	3.2	1.7	1.5	2.2	2.4	1.5	1.4	1.5	1.1	1.6	1.3	1.2	1.2	.8
No Report	1.0	.8	.9	.4	.3	.2	.1	.4	.3	.5	.3	.1	.4	.2	.3
Plans Not Reported	3.4	2.9	4.7	5.9	4.7	10.1	6.3	6.2	6.4	7.7	5.9	7.0	7.3	8.2	9.2
Biological and Health Sciences	3053	3420	3825	3694	3801	3650	3629	3796	3708	3756	3896	4087	4136	4244	4075
Seeking Appointment	20.5	18.4	20.2	21.9	22.5	22.9	21.9	22.0	23.8	22.3	20.6	21.9	22.7	23.5	23.4
Postdoctoral Study	8.3	6.8	7.5	8.0	8.9	9.9	10.1	10.0	11.0	11.1	9.4	11.7	11.8	12.1	11.7
Employment	12.2	11.6	12.7	13.9	13.6	13.1	11.8	12.0	12.7	11.2	11.2	10.3	10.9	11.4	11.7
Definite Plans	75.0	77.2	72.9	70.5	71.1	67.0	71.4	70.9	69.6	70.7	72.7	73.0	72.0	70.9	71.3
Postdoctoral Study	32.2	36.3	34.0	35.8	34.9	33.6	41.3	41.8	43.3	45.4	47.2	47.7	46.5	46.6	47.5
Employment	42.7	40.9	38.8	34.7	36.1	33.4	30.1	29.1	26.3	25.3	25.5	25.3	25.5	24.3	23.8
Academe	31.0	28.1	27.5	23.7	24.3	21.8	18.0	17.9	16.2	15.6	15.1	13.9	14.7	12.6	12.9
Business/Industry	4.7	4.3	3.7	3.0	3.9	4.4	4.1	4.2	4.2	4.4	4.7	5.2	5.4	6.3	5.3
Government	5.2	6.1	5.9	5.5	5.6	5.2	5.5	4.7	4.1	4.0	3.9	4.3	3.8	3.5	3.8
Nonprofit	1.0	1.8	1.4	2.2	2.1	1.9	2.3	2.1	1.7	1.3	1.7	1.8	1.5	1.8	1.4
No Report	.8	.6	.4	.3	.3	.2	.2	.3	.1	.1	.2	.1	.1	.1	.3
Plans Not Reported	4.5	4.4	7.0	7.6	6.4	10.1	6.7	7.1	6.7	7.0	6.7	5.1	5.4	5.7	5.3
Agricultural Sciences	647	723	830	771	795	739	820	721	695	769	763	807	860	885	889
Seeking Appointment	25.2	24.3	26.1	32.0	30.1	29.9	26.6	29.5	31.5	28.6	30.8	26.0	30.0	30.7	33.9
Postdoctoral Study	5.4	5.7	5.1	6.2	7.5	8.1	6.2	6.7	6.2	7.3	6.4	7.3	6.6	7.3	8.4
Employment	19.8	18.7	21.1	25.8	22.5	21.8	20.4	22.9	25.3	21.3	24.4	18.7	23.4	23.4	25.4
Definite Plans	70.8	71.6	69.8	62.1	65.4	62.8	67.6	64.1	62.7	66.4	62.5	67.2	62.9	63.2	58.2
Postdoctoral Study	9.0	8.9	8.9	7.3	10.8	8.5	9.5	9.7	9.1	9.0	8.3	10.4	8.8	10.8	9.4
Employment	61.8	62.8	60.8	54.9	54.6	54.3	58.0	54.4	53.7	57.5	54.3	56.8	54.1	52.3	48.7
Academe	37.7	36.9	36.6	32.6	29.6	28.3	31.8	28.6	30.6	30.8	32.2	33.1	29.0	29.7	25.4
Business/Industry	10.0	12.9	9.3	8.7	12.3	14.2	14.1	11.8	12.2	15.2	11.5	12.6	13.7	14.1	15.0
Government	11.7	11.1	13.3	12.1	10.9	9.9	10.1	12.1	10.4	9.8	8.5	9.4	8.7	7.0	6.9
Nonprofit	.8	.4	.6	1.0	1.4	1.5	1.3	.7	.3	1.3	1.3	.7	1.5	1.1	.8
No Report	1.5	1.5	1.1	.5	.4	.4	.6	1.2	.1	.4	.7	.9	1.2	.3	.7
Plans Not Reported	4.0	4.0	4.1	5.8	4.5	7.3	5.9	6.4	5.8	4.9	6.7	6.8	7.1	6.1	8.0
Social Sciences	3658	4170	4758	4981	5284	5441	5605	5724	5643	5658	5576	5491	5767	5444	5716
Seeking Appointment	16.1	16.6	16.0	17.7	19.9	21.9	24.0	26.2	27.0	28.0	27.3	26.6	26.4	28.0	30.4
Postdoctoral Study	2.2	1.8	1.7	2.1	2.2	2.6	2.7	3.4	3.8	3.9	3.8	3.7	4.1	4.4	4.5
Employment	13.9	14.9	14.2	15.6	17.7	19.3	21.2	22.8	23.2	24.1	23.5	23.0	22.2	23.6	25.9
Definite Plans	78.0	78.4	77.9	74.7	73.7	68.1	69.2	67.2	65.1	62.9	65.1	67.0	67.0	64.0	62.2
Postdoctoral Study	6.1	6.5	6.0	5.8	6.1	5.8	5.9	7.0	7.2	8.5	8.0	9.0	9.3	8.0	8.8
Employment	72.0	71.9	71.9	68.9	67.6	62.3	63.3	60.2	57.9	54.5	57.1	58.0	57.7	56.0	53.4
Academe	53.8	54.9	55.4	51.1	48.1	43.2	43.2	39.5	36.8	33.0	32.7	31.8	30.7	29.8	28.1
Business/Industry	3.4	3.6	2.6	3.0	3.5	3.7	3.7	4.2	4.3	5.2	6.6	7.3	7.8	8.8	8.7
Government	8.9	8.1	9.2	10.0	9.5	9.2	10.2	10.1	9.9	8.6	10.2	10.2	10.9	8.7	8.1
Nonprofit	4.2	4.1	3.7	4.0	5.3	5.4	5.4	5.7	6.2	7.0	6.9	8.0	7.4	7.8	7.5
No Report	1.6	1.4	1.1	.9	1.1	.8	.8	.7	.7	.7	.8	.7	.9	.8	1.0
Plans Not Reported	5.9	4.9	6.1	7.5	6.4	10.0	6.9	6.7	7.9	9.0	7.6	6.4	6.6	8.0	7.4

TABLE E (continued)

Postgraduation Plans	Year of Doctorate														
	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Humanities	3585	4040	4350	4802	5113	4925	4792	4626	4342	4013	3945	3658	3515	3359	3292
Seeking Appointment	13.8	15.5	17.8	21.8	26.9	29.8	34.5	36.0	35.9	35.2	36.9	33.8	33.3	32.3	34.4
Postdoctoral Study	.5	.7	1.1	1.2	2.2	2.0	2.3	2.6	2.7	2.7	3.0	2.8	2.8	2.5	2.9
Employment	13.3	14.8	16.8	20.6	24.8	27.8	32.2	33.4	33.2	32.5	33.9	31.0	30.6	29.8	31.5
Definite Plans	79.2	78.0	74.5	69.0	64.9	58.7	55.9	53.6	52.5	54.5	52.8	57.7	58.9	58.6	57.4
Postdoctoral Study	1.5	1.6	1.6	1.6	2.2	1.8	1.8	1.5	2.2	2.4	2.8	2.4	2.3	2.5	2.1
Employment	77.8	76.4	72.9	67.5	62.6	56.9	54.1	52.1	50.3	52.1	50.0	55.3	56.6	56.1	55.3
Academe	73.8	73.1	68.9	63.6	58.8	52.4	48.7	46.8	44.5	44.6	42.0	44.9	46.7	46.6	45.9
Business/Industry	.3	.5	.7	.8	.9	1.3	1.3	1.4	1.7	2.6	2.5	3.9	3.5	4.-	3.5
Government	1.0	.9	.9	1.0	1.1	1.6	1.8	1.7	1.5	2.0	2.3	2.6	2.4	1.8	1.8
Nonprofit	1.5	.9	2.0	1.7	1.5	1.4	2.0	2.1	2.4	2.6	3.0	3.5	3.3	3.1	3.3
No Report	1.2	1.0	.5	.3	.4	.2	.4	.2	.2	.4	.3	.4	.6	.3	.9
Plans Not Reported	6.9	6.4	7.7	9.2	8.2	11.5	9.7	10.4	11.6	10.3	10.3	8.6	7.8	9.1	8.3
Professional Fields	681	789	879	1079	1306	1456	1435	1553	1501	1575	1541	1501	1473	1624	1581
Seeking Appointment	10.9	12.3	11.5	13.1	11.8	14.4	14.4	17.0	16.0	16.6	16.0	16.1	16.4	18.1	16.4
Postdoctoral Study	.1	.6	.5	.6	.2	1.0	.5	.8	.9	.6	.8	1.1	.9	.5	.6
Employment	10.7	11.7	11.0	12.4	11.6	13.4	13.9	16.2	15.1	15.9	15.2	15.0	15.5	17.6	15.8
Definite Plans	75.2	80.5	81.1	79.9	81.9	75.8	79.9	75.7	76.9	77.2	77.7	78.7	76.1	73.6	76.2
Postdoctoral Study	.7	.6	.6	.9	1.1	1.0	1.2	1.0	1.1	1.1	1.6	1.5	.6	.9	1.5
Employment	74.4	79.8	80.5	79.0	80.8	74.8	78.7	74.7	75.8	76.1	76.1	77.2	75.5	72.7	74.7
Academe	64.5	67.8	65.5	67.5	65.1	60.9	62.5	58.7	57.6	56.8	56.1	56.6	54.2	51.7	54.2
Business/Industry	4.1	4.9	5.5	4.3	5.0	4.5	5.2	3.8	5.7	5.3	6.0	6.3	7.3	6.5	7.8
Government	4.1	4.6	6.9	4.8	5.1	4.1	4.0	4.8	5.5	5.3	6.6	5.1	5.8	5.7	4.7
Nonprofit	1.0	1.3	1.9	1.6	5.1	5.2	6.6	7.1	6.7	8.3	6.7	8.8	7.9	8.3	7.6
No Report	.7	1.3	.7	.8	.5	.1	.4	.3	.3	.5	.6	.4	.3	.6	.4
Plans Not Reported	14.0	7.2	7.4	7.0	6.4	9.8	5.7	7.3	7.1	6.2	6.3	5.2	7.5	8.3	7.3
Education	4460	5618	6188	6764	6942	6942	7057	7414	7121	6849	7001	7179	7081	6788	6739
Seeking Appointment	20.1	22.9	21.7	22.7	23.7	24.3	24.8	24.9	26.2	26.8	28.1	24.4	25.5	25.3	26.1
Postdoctoral Study	.6	.4	.8	.9	1.0	1.2	1.1	1.0	1.7	1.4	1.5	1.1	1.7	1.5	1.5
Employment	19.5	22.5	21.0	21.8	22.8	23.1	23.8	23.9	24.5	25.3	26.5	23.2	23.8	23.8	24.5
Definite Plans	75.1	73.8	75.0	72.2	71.5	68.0	70.5	69.4	67.7	66.2	65.4	69.9	68.8	68.8	68.5
Postdoctoral Study	.8	1.2	1.2	1.0	1.3	1.4	1.2	1.4	1.6	1.5	1.6	1.6	1.4	1.5	1.5
Employment	74.3	72.6	73.8	71.2	70.2	66.6	69.3	67.9	66.1	64.8	63.8	68.3	67.4	67.2	67.0
Academe	65.2	62.4	63.0	61.2	58.7	54.0	55.8	54.7	52.3	50.3	48.9	52.7	51.5	49.4	49.9
Business/Industry	.9	1.1	1.1	1.0	1.3	1.4	1.7	1.7	2.1	2.2	2.9	3.4	3.6	4.9	4.9
Government	4.6	4.7	5.8	5.7	6.6	7.5	7.6	7.6	7.7	8.0	7.7	7.6	7.9	7.5	6.7
Nonprofit	2.0	2.3	2.6	2.7	2.9	2.9	3.3	3.3	3.5	3.7	3.7	3.8	3.6	4.5	4.2
No Report	1.6	2.0	1.3	.5	.7	.7	.7	.6	.5	.6	.6	.8	.8	.9	1.3
Plans Not Reported	4.8	3.3	3.3	5.1	4.7	7.7	4.7	5.7	6.1	7.0	6.5	5.8	5.7	5.9	5.4

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

Engineering Doctorate Recipients Entering the U.S. Labor Force

With the exception of Tables 1 and 1A near the end of this report, analyses based on field of doctorate have been at the broad field level. These kinds of analyses, although providing a vehicle for comparison across major discipline lines, often miss the rich diversity within broad areas of study. The section that follows continues the general theme of entry into the U.S. labor force but addresses the characteristics of recent doctorate recipients in a single professional area--engineering. The field of engineering is of interest for a number of reasons; chief among them are the especially diverse international background of its Ph.D.s and the continuing strong demand from both industry and academe for engineering doctoral graduates.

Displayed in Table F is a series of statistical elements describing the 1983 Ph.D. recipients across nine subfield groupings. While the figures for total engineers suggest uniformity within the discipline, the field breakdowns reveal an intrinsic heterogeneity. Sources of these between-field differences range from demographic characteristics to postdoctoral career plans. For example, although engineering Ph.D.s are predominantly male, in areas such as materials and industrial engineering the proportion of females (9 and 11 percent, respectively) is more than twice the overall engineering percentage. While all of the engineering fields have substantial proportions of non-U.S. citizen Ph.D.s, three areas--mechanical, aeronautical, and industrial--have over one-half of their doctorate recipients reporting foreign citizenship. Many of the non-U.S. engineers are from countries in Asia, and this geographic orientation is reflected in the very large proportion of members of the Asian racial/ethnic group among the 1983 engineering Ph.D.s, about three times the percentage for other doctoral fields.

As in most science fields, research assistantships are the most frequently reported support source by doctoral engineers. Nearly one-half of the 1983 engineering doctorate recipients relied on research assistantships as their primary source of support in graduate school. Industrial engineers reported an atypical support pattern, with greater percentages of doctorate recipients indicating primary support from teaching assistantships and own and family earnings than were reported by Ph.D.s in other engineering fields. The fact that industrial engineering has the lowest proportion of Ph.D.s reporting primary support from research assistantships may indicate a lower level of federal research funding for industrial research than for other engineering fields.

Although engineering Ph.D.s tend to go directly to employment following graduation rather than taking postdoctoral study appointments, over one-quarter of the engineers in two fields--materials and aeronautical--were either seeking or had obtained postdoctoral study positions in 1983. Interestingly, both of these fields, especially materials engineering, have relatively low percentages of Ph.D. recipients who go directly from the Ph.D. to academic positions. Across the Table F engineering fields, there is wide variation in the proportion of new Ph.D.s securing academic positions; industrial (43 percent) and civil engineering (27 percent) were the leading fields in 1983 for university employment. The most business and industry-oriented fields were chemical, engineering science and systems, and electrical engineering. Probably due to national programs in space, defense, and energy, doctorate recipients in aeronautical and nuclear engineering chose government employment in greater proportions than did graduates in other engineering fields.

Nearly two-thirds of 1983 doctoral engineers reporting definite employment commitments expected that research and development would be their primary work activity. Chemical and electrical engineers reported R&D as their primary activity with even greater frequency then did engineers in other fields, 77 and 76 percent, respectively. Perhaps not surprisingly, Ph.D.s in the two engineering fields with the largest proportions planning academic employment--civil and industrial--run contrary to the dominance of R&D, with greater percentages in both fields expecting to be engaged in teaching rather than having research as their primary activity.

TABLE F Statistical Profile of Engineering Doctorates Entering the U.S. Labor Force, 1983

	Total	Field of Engineering*									
		Aero/ Astro	Chem	Civil	Elec/ Comp.	Sci./ Syst.	Ind.	Mtls.	Mech.	Nucl.	Other
Total	2,391	89	323	330	573	84	107	230	328	83	244
Male	95.5	97.8	93.5	96.7	97.9	95.2	90.7	88.7	97.6	96.4	95.5
Female	4.5	2.2	6.5	3.3	2.1	4.8	9.3	11.3	2.4	3.6	4.5
U.S. Citizen	47.7	44.9	52.0	46.1	45.0	54.8	44.9	46.5	43.6	42.2	58.6
Non-U.S. Permanent	12.8	13.5	12.1	8.8	15.2	9.5	19.6	12.2	14.0	13.3	9.8
Non-U.S. Temporary	34.2	37.1	32.5	40.9	34.2	32.1	30.8	34.3	38.1	34.9	23.0
Citizenship Not Reported	5.4	4.5	3.4	4.2	5.6	3.6	4.7	7.0	4.3	9.6	8.6
American Indian	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4
Asian	31.2	32.6	35.3	29.4	34.0	22.6	24.3	38.7	34.1	27.7	16.8
Black	2.2	1.1	1.2	3.0	.7	2.4	4.7	3.9	2.7	1.2	2.9
White	56.8	55.1	54.8	57.9	56.5	66.7	60.7	48.3	55.5	56.6	64.3
Hispanic	2.2	1.1	2.8	3.3	1.4	1.2	5.6	2.2	1.5	2.4	1.6
Other and No Report	7.6	10.1	5.9	6.4	7.3	7.1	4.7	7.0	6.1	12.0	13.9
Primary Source of Support											
NSF	2.2	.0	4.0	2.1	1.6	2.4	.0	3.5	4.0	1.2	.0
Other Federal	5.9	13.5	4.3	6.4	4.4	4.8	5.6	1.7	5.5	8.4	12.3
University Fellowship	3.0	.0	9.6	1.5	1.9	2.4	.9	1.3	3.4	1.2	2.9
Teaching Assistantship	10.3	4.5	8.7	12.4	12.0	8.3	19.6	5.7	14.0	4.8	5.3
Reseach Assistantship	46.7	59.6	47.7	42.1	47.6	38.1	34.6	64.8	46.0	48.2	36.5
Bus./Industry Educ. Funds	3.2	1.1	4.0	1.8	3.7	6.0	3.7	3.0	3.0	4.8	2.5
Own Earnings	9.2	4.5	2.5	13.3	10.5	16.7	12.1	3.9	7.9	8.4	14.3
Spouse/Family Earnings	2.6	.0	2.2	3.9	2.3	2.4	7.5	1.3	2.1	3.6	2.5
Loans	.2	.0	.0	.3	.3	1.2	.0	.0	.0	.0	.4
Other Sources	4.4	3.4	5.3	4.8	3.5	3.6	4.7	4.8	4.6	2.4	5.3
No Primary Source Reported	12.3	13.5	11.8	11.2	12.2	14.3	11.2	10.0	9.5	16.9	18.0
Postgraduation Plans											
Seeking Appointment	27.6	32.6	23.8	34.5	23.0	28.6	31.8	28.3	29.9	28.9	25.8
Postdoctoral Study	6.5	12.4	7.1	5.2	4.2	6.0	1.9	10.0	11.0	1.2	5.7
Employment	21.1	20.2	16.7	29.4	18.8	22.6	29.9	18.3	18.9	27.7	20.1
Definite Plans	63.2	59.6	68.4	57.3	67.5	63.1	62.6	62.2	61.6	57.8	61.1
Postdoctoral Study	8.3	13.5	7.4	5.8	6.6	4.8	1.9	17.8	8.2	9.6	9.4
Employment	55.0	46.1	61.0	51.5	60.9	58.3	60.7	44.3	53.4	48.2	51.6
Academe	18.4	12.4	14.9	27.3	17.8	15.5	43.0	2.6	18.0	7.2	23.8
Business/Industry	29.6	19.1	44.9	15.8	36.8	36.9	11.2	34.8	28.4	30.1	17.2
Government	5.9	11.2	1.2	7.9	5.1	4.8	4.7	5.2	6.1	10.8	9.4
Nonprofit	.8	3.4	.0	.0	.5	1.2	1.9	1.3	.9	.0	1.2
Other and No Report	.3	.0	.0	.6	.7	.0	.0	.4	.0	.0	.0
Plans Not Reported	9.2	7.9	7.7	8.2	9.4	8.3	5.6	9.6	8.5	13.3	13.1
Primary Work Activity											
Definite Employment Plans	1,314	41	197	170	349	49	65	102	175	40	126
Research and Development	65.1+	73.2	77.2	31.2	75.9	69.4	40.0	85.3	64.6	52.5	59.5
Teaching	20.9	17.1	14.7	37.6	17.5	14.3	47.7	5.9	25.1	7.5	18.3
Administration	1.8	2.4	.5	2.9	1.1	2.0	.0	2.0	.6	5.0	5.6
Professional Services	5.3	2.4	2.0	17.6	1.7	6.1	6.2	1.0	3.4	12.5	7.1
Other	2.5	2.4	1.0	5.9	.9	2.0	1.5	1.0	.0	17.5	5.6
Activity Not Reported	4.3	2.4	4.6	4.7	2.9	6.1	4.6	4.9	6.3	5.0	4.0

*Aeronautical/Astronautical, Chemical, Civil, Electrical/Computer, Engineering Science and Systems, Industrial, Materials, Mechanical, Nuclear, and Other.
+Vertical percentage based on total engineering doctorate recipients with definite employment plans.

NOTE: Details may not add to totals because of rounding.

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

SUMMARY NOTES

The preceding sections of this Summary Report have examined trends in the production of U.S. doctorates and defined and described the Ph.D. component of new entrants to the U.S. labor force.

Changes in the numbers of citizens earning the doctorate were reviewed relative to the United States population cohort, which forms the pool of potential degree recipients. While the population cohort has experienced large and continuing increases, the number of U.S. citizen Ph.D.s reached its peak in the early 1970s and has subsequently declined. These opposing trends suggest that future increases in the number of doctorate recipients will rely more on raising the participation rates of baccalaureate recipients in graduate education and introducing nontraditional students into the Ph.D. pipeline than on growth in the population of potential degree earners.

In defining the Ph.D. component of the new entrants to the U.S. labor force, citizenship status and intent to remain in the U.S after receipt of the doctorate were examined. Nearly one-fifth of the doctorate recipients were non-U.S. citizens, a large proportion of whom were temporary-visa holders. During the 1959 to 1983 period, nearly all of the U.S. citizens and non-U.S. citizens holding permanent (immigrant) visas consistently reported plans to enter the U.S. labor force, and the percentage of temporary-visa holders planning to remain in the U.S. has generally increased.

Attention was then focused on these Ph.D.s planning to remain in the U.S. after receipt of the doctorate. This portion of the total Ph.D. population was defined as all those who reported a definite commitment for U.S. employment or study as well as those who were deemed highly likely to remain in the U.S. given no reported definite plans. While in 1983 nearly all of the U.S. citizen and permanent-visa holders planned to stay in the U.S. after the doctorate, roughly one-half of temporary-visa holders planned to remain in the U.S. for employment or further study. Several between-field differences emerged when examining the citizenship composition of new entrants. Specifically, engineering has consistently been the field with the greatest proportion of non-U.S. citizens remaining in the U.S. after the doctorate while Ph.D.s in agricultural sciences returned home at a much higher rate than did other doctorates. Among all science fields, biological sciences and health sciences were the two fields with the lowest proportion of non-U.S. citizen doctorate recipients.

Statistics on the postgraduation plans of these new entrants revealed that the proportion of Ph.D.s without a definite commitment has increased over time with the largest increase being in those who were seeking employment. Among the new entrants with definite commitments, postdoctoral study commitments increased while the proportion with plans for academic employment decreased markedly between 1969 and 1983.

Finally, the analysis of a single discipline area--engineering--revealed a rich diversity in demographic characteristics and postgraduation plans among new entrants to the U.S. labor force within the broad field level. Clearly, then, these broad-gauge findings must be tempered with the awareness that there exists a wide range of characteristics and activity patterns within discipline areas.

EXPLANATION OF THE FIVE BASIC TABLES

Table 1 Number of Doctorate Recipients by Sex and Subfield, 1983

Table 1A Number of Doctorate Recipients by Citizenship, Racial/Ethnic Group, and Subfield, 1983

Table 2 Statistical Profile of Doctorate Recipients by Sex and by Field of Doctorate, 1983

Table 3 Sources of Support in Graduate School of Doctorate Recipients by Sex and Summary Field, 1983

Table 4 State of Doctoral Institution of Doctorate Recipients by Sex and Summary Field, 1983

Table 5 Statistical Profile of Doctorate Recipients by Racial/Ethnic Group and U.S. Citizenship Status, 1983

Table titles and headings are generally self-explanatory, but a few terms need special definition or explanation. The survey questionnaire is reproduced on pages 50-51.

Tables 1 and 1A

Turning to the standard tables presented from year to year in these reports, Tables 1 and 1A display 1983 data by subfield of doctorate, corresponding to the fields specified in the Specialties List on page 52. The "general" field categories--e.g., "chemistry, general"--contain individuals who either received the doctorate in the general subject area or who did not indicate a particular specialty field. The "other" field categories--e.g., "chemistry, other"--include those individuals whose specified doctoral discipline was not included among the specialty fields. The reader is referred to the Technical Appendix, p. 40, for a discussion of the broad revisions made in the 1983 Specialties List and the effect these changes may have on comparisons with earlier Summary Reports.

Table 2

There are three two-page tables: one contains data about all doctorate recipients in 1983 and the other two present data by sex. These tables provide data by field and also by broader summary field. Refer to the inside of the back cover of this report for the codes included in each broad field and to the Specialties List on page 52 for the codes and names of each subfield. Definitions are as follows:

Median Age at Doctorate--One-half received the doctorate at or before this age.

Percentage with Master's--The percentage of doctorate recipients in a field who received a master's degree in any field before earning the doctorate.

Median Time Lapse--"Total Time" refers to total calendar time elapsed between the year of baccalaureate and the year of doctorate; "Registered Time" refers to the total time registered in a university between baccalaureate and doctorate.

Each year's doctorate recipients provide information on postgraduation employment or study plans in response to items 19 and 20 on the survey form. Since the questionnaire is filled out at about the time the doctorate is received, these planned activities can be subject to change. However, comparisons with data from the longitudinal Survey of Doctorate Recipients have shown these data to be a reasonable predictor of actual employment status in the year following the doctorate.[6] Postgraduation plans of the doctorate recipients are grouped as follows:

"Postdoctoral Study Plans" (fellowship, research associateship, traineeship, other), "Planned Employment" (educational institution, industry, etc.), or "Postdoctoral Status Unknown." The sum of these lines of percentages totals 100 percent for each column, with allowance for rounding. For example, 14.2 percent of all engineers had postdoctoral study plans, 77.5 percent planned employment, and 8.2 percent did not report their postgraduation plans--these total 99.9 percent. The study and employment rows are further subdivided, showing that 3.6 percent of all the engineers plan to pursue postdoctoral fellowships, 8.7 percent plan research associateships, 1.5 percent plan traineeships, and 0.5 percent plan some other form of

[6] See discussion on page 9 (analysis section of SDR versus DRF data) and National Research Council, A Century of Doctorates: Data Analyses of Growth and Change, National Academy of Sciences, Washington, D.C., 1978, pp. 92-93.

postdoctoral study. The employment row is similarly subdivided; the percentages listed by type of employer (educational institution, industry, etc.) total 77.5 percent planning employment.

The four lines of data beginning with "Definite Postdoctoral Study" distinguish between individuals who have definite postgraduation plans (item 18: "Am returning to, or continuing in, predoctoral appointment" or "Have signed contract or made definite commitment") and those who are still seeking employment or postdoctoral study (item 18: "Am negotiating with one or more specific organizations," "Am seeking appointment but have no definite prospects," or "Other"). These four lines, when added to the prior line "Postdoctoral Status Unknown," total 100 percent with allowance for rounding. The two lines "Definite Postdoctoral Study" and "Seeking Postdoctoral Study" add to give the percentage planning postdoctoral study listed in the table as "Postdoctoral Study Plans," and the two lines, "Definite Employment" and "Seeking Employment," add to give the percentage planning employment listed in the table as "Planned Employment After Doctorate."

Percentages showing the distribution of doctorate recipients by work activity and by region of employment are based on those who have a definite employment commitment. They exclude those still seeking employment and those planning postdoctoral study as described in the categories above.

Table 3

Displayed in Table 3 are data reported by doctorate recipients on all sources of financial support during the course of their graduate education. The data in the table should be interpreted as follows: 219 male doctorate recipients in the physical sciences reported financial support from National Science Foundation fellowships during graduate school. This number is 6.1 percent of the male physical sciences doctorates who answered the question, and it is 42.4 percent of the males in all fields who reported NSF fellowship support. Since students indicate multiple sources of support, the vertical percentages sum to more than 100 percent.

Table 4

Table 4 shows the number of persons receiving a doctorate from universities in each of the 50 states, the District of Columbia, and Puerto Rico.

Table 5

The 1973 Summary Report was the first to include data for racial and ethnic groups. Table 5 contains data by racial/ethnic group and by U.S. citizenship status for selected variables from Tables 2 and 3.

In 1977, the item on racial/ethnic group in the survey questionnaire was revised to coincide with the question format recommended by the Federal Interagency Committee on Education and adopted by the Office of Management and Budget (OMB) for use in federally sponsored surveys. An explanation of the effects of these changes is detailed on page 13 of the 1977 Summary Report. Changes in the OMB guidelines prompted the moving of persons having origins in the Indian subcontinent from the white category to Asian in 1978. In 1980 the category Hispanic was subdivided into Puerto Rican, Mexican-American, and Other Hispanic to provide more detail for users of the racial/ethnic data. An additional revision to this item in 1980 involved the number of categories that may be checked. Prior to 1980 doctorate recipients could check more than one category to indicate their racial/ethnic background. When compiling the data, all persons who checked Asian, American Indian, or Hispanic and also checked "white" were included in the minority-group category. Those whose responses were "black" and who gave an additional response to any other category were designated as "black." Beginning in 1980 respondents were asked to check only one category. Evidence of this change was most pronounced in the American Indian group, where the majority of the respondents formerly checked "white" in addition to American Indian.

Beginning with the 1982 survey, this item was revised to separate questions on racial and ethnic groups. Respondents are first asked to check one of the four racial group categories (American Indian, Asian, black, or white) and then to indicate Hispanic heritage. For purposes of analysis all respondents who indicated Hispanic heritage, regardless of racial identification, are included in one of the three Hispanic groups. The remaining survey respondents are then counted in the respective racial groups.

TABLE 1 Number of Doctorate Recipients by Sex and Subfield, 1983[1/]

Subfield of Doctorate	Number of Doctorates		
	Men	Women	Total
TOTAL ALL FIELDS	20705	10485	31190
PHYSICAL SCIENCES	3807	617	4424
MATHEMATICS	588	113	701
Applied Mathematics	104	21	125
Algebra	47	8	55
Analysis and Functional Analysis	68	8	76
Geometry	38	6	44
Logic	19	2	21
Number Theory	15	4	19
Probability and Math Statistics	124	27	151
Topology	35	9	44
Computing Theory and Practice	10	2	12
Operations Research	15	5	20
Mathematics, General	78	8	86
Mathematics, Other	35	13	48
COMPUTER SCIENCE	249	36	285
Computer Sciences	230	33	263
Information Sciences and Systems	19	3	22
PHYSICS AND ASTRONOMY	968	74	1042
Astronomy	42	8	50
Astrophysics	58	7	65
Acoustics	13	1	14
Atomic and Molecular	65	6	71
Electron	1		1
Elementary Particles	133	3	136
Fluids	13	2	15
Nuclear	84	6	90
Optics	48	2	50
Plasma	70	2	72
Polymer	10		10
Solid State	200	21	221
Physics, General	141	9	150
Physics, Other	90	7	97
CHEMISTRY	1462	297	1759
Analytical	218	46	264
Inorganic	177	38	215
Nuclear	10	3	13
Organic	433	70	503
Pharmaceutical	62	16	78
Physical	250	61	311
Polymer	50	12	62
Theoretical	41	7	48
Chemistry, General	154	23	177
Chemistry, Other	67	21	88
EARTH, ATMOSPHERIC AND MARINE SCI	540	97	637
Atmospheric Physics and Chemistry	20	1	21
Atmospheric Dynamics	15	1	16
Meteorology	18		18
Atmos and Meteorological Sci, Gen	15	1	16
Atmos and Meteorological Sci, Other	23	3	26
Geology	88	17	105
Geochemistry	39	9	48
Geophysics and Seismology	67	8	75
Paleontology	15	2	17
Mineralogy, Petrology	18	6	24
Stratigraphy, Sedimentation	21	4	25
Geomorphology and Glacial Geology	8	2	10
Applied Geology	8		8
Geological Sciences, General	13	2	15
Geological Sciences, Other	19	2	21
Environmental Sciences	39	11	50
Hydrology and Water Resources	19	1	20
Oceanography	69	18	87
Marine Sciences	15	7	22
Physical Sciences, Other	11	2	13
ENGINEERING	2656	124	2780
Aerospace, Aeronaut & Astronaut	104	2	106
Agricultural	57	1	58
Bioengineering and Biomedical	65	8	73
Ceramic	21	3	24
Chemical	327	22	349
Civil	342	12	354
Communications	25		25
Computer	77	6	83
Electrical, Electronics	510	7	517
Engineering Mechanics	66	2	68
Engineering Physics	10		10
Engineering Science	29	1	30
Environmental Health Engineering	42	1	43
Industrial	80	6	86
Materials Science	135	22	157
Mechanical	305	6	311
Metallurgical	82	5	87
Mining and Mineral	21	1	22
Naval Architecture, Marine Eng	4		4
Nuclear	98	5	103
Ocean	12		12
Operations Research	39	5	44
Petroleum	22		22
Polymer	20	1	21
Systems	54	3	57
Engineering, General	29	1	30
Engineering, Other	80	4	84
LIFE SCIENCES	3823	1717	5540
BIOLOGICAL SCIENCES	2501	1231	3732
Biochemistry	452	194	646
Biophysics	72	16	88
Bacteriology	6	4	10
Plant Genetics	14	5	19
Plant Pathology	21	8	29
Plant Physiology	43	24	67
Botany, Other	77	39	116
Anatomy	68	36	104
Biometrics and Biostatistics	23	22	45
Cell Biology	78	41	119
Ecology	146	37	183
Embryology	6	7	13
Endocrinology	14	14	28
Entomology	121	20	141
Immunology	88	66	154
Molecular Biology	149	76	225
Microbiology	191	117	308
Neurosciences	85	49	134
Nutritional Sciences	39	72	111
Parasitology	9		9
Toxicology	44	16	60
Human and Animal Genetics	52	43	95
Human and Animal Pathology	72	24	96
Human and Animal Pharmacology	146	71	217
Human and Animal Physiology	175	68	243
Zoology, Other	129	63	192
Biological Sciences, General	114	60	174
Biological Sciences, Other	67	39	106
HEALTH SCIENCES	301	335	636
Audiology and Speech Pathology	43	70	113
Environmental Health	32	6	38
Public Health	22	29	51
Epidemiology	40	36	76
Nursing	7	119	126
Pharmacy	62	19	81
Veterinary Medicine	33	12	45
Health Sciences, General	16	4	20
Health Sciences, Other	46	40	86
AGRICULTURAL SCIENCES	1021	151	1172
Agricultural Economics	139	18	157
Animal Breeding and Genetics	21	4	25
Animal Nutrition	50	6	56
Animal Sciences, Other	83	9	92
Agronomy	138	11	149
Plant Breeding and Genetics	58	13	71
Plant Pathology	73	19	92
Plant Sciences, Other	15	1	16
Food Sciences	103	38	141
Soil Sciences	78	7	85
Horticulture Science	63	9	72
Fisheries Science	30	6	36
Wildlife Management	30	1	31
Forestry Science	86	4	90
Agriculture, General	7		7
Agriculture, Other	47	5	52

1/*Subfield data may not be compatible with earlier years because of changes in field taxonomy.* Refer to Technical Appendix, p. 40.

TABLE 1. (Continued)

Subfield of Doctorate	Number of Doctorates		
	Men	Women	Total
SOCIAL SCIENCES (INCL PSYCH)	3675	2380	6055
Anthropology	198	175	373
Area Studies	9	11	20
Criminology	42	7	49
Demography	14	12	26
Economics	663	129	792
Econometrics	17	4	21
Geography	84	37	121
International Relations	62	15	77
Political Science and Government	314	83	397
Public Policy Studies	42	26	68
Sociology	309	216	525
Statistics	42	5	47
Urban Studies	52	22	74
Social Sciences, General	14	3	17
Social Sciences, Other	78	63	141
PSYCHOLOGY	1735	1572	3307
Clinical	637	572	1209
Cognitive	34	31	65
Comparative	7	4	11
Counseling	233	199	432
Developmental	71	148	219
Experimental	128	81	209
Educational	79	74	153
Industrial and Organizational	60	30	90
Personality	23	9	32
Physiological	67	27	94
Psychometrics	2	8	10
Quantitative	10	4	14
School	49	72	121
Social	88	103	191
Psychology, General	157	130	287
Psychology, Other	90	80	170
HUMANITIES	1964	1530	3494
History, American	151	73	224
History, European	119	49	168
History of Science	6	7	13
History, General	42	16	58
History, Other	99	54	153
Classics	27	17	44
Comparative Literature	52	72	124
Linguistics	78	86	164
Speech and Debate	23	25	48
Letters, General	1	2	3
Letters, Other	10	9	19
American Studies	53	45	98
Archeology	11	19	30
Art History and Criticism	49	101	150
Music	269	122	391
Philosophy	178	64	242
Religion	139	34	173
Theatre	63	44	107
LANGUAGE AND LITERATURE	556	662	1218
American	72	101	173
English	266	275	541
French	35	86	121
German	30	47	77
Italian	12	10	22
Spanish	70	91	161
Russian	11	13	24
Slavic	5	4	9
Chinese	9	7	16
Japanese	3	2	5
Hebrew	10	1	11
Arabic	6	2	8
Other Languages	27	23	50
Humanities, General	10	7	17
Humanities, Other	28	22	50

Subfield of Doctorate	Number of Doctorates		
	Men	Women	Total
PROFESSIONAL FIELDS	1224	504	1728
BUSINESS ADMINISTRATION	631	124	755
Accounting	132	31	163
Banking and Finance	84	10	94
Business Admin and Management	155	25	180
Business Economics	24	1	25
Marketing Management and Research	56	17	73
Business Statistics	8		8
Operations Research	29	9	38
Organizational Behavior	37	16	53
Business and Management, General	33	3	36
Business and Management, Other	73	12	85
COMMUNICATIONS	149	103	252
Communications Research	36	15	51
Journalism	13	8	21
Radio and Television	18	9	27
Communications, General	30	30	60
Communications, Other	52	41	93
OTHER PROFESSIONAL FIELDS	444	277	721
Architecture, Environmental Design	29	5	34
Home Economics	10	69	79
Law	19		19
Library and Archival Science	21	30	51
Public Administration	88	26	114
Social Work	75	109	184
Theology	191	32	223
Professional Fields, General			
Professional Fields, Other	11	6	17
EDUCATION	3543	3604	7147
Curriculum and Instruction	330	526	856
Educational Admin and Supervision	987	632	1619
Educational Media	53	35	88
Educational Statistics and Research	46	40	86
Educational Testing, Eval and Meas	31	20	51
Educational Psychology	107	167	274
School Psychology	44	44	88
Social Foundations	81	61	142
Special Education	120	229	349
Student Counseling, Personnel Serv	250	252	502
Higher Education	328	304	632
Pre-elementary Education	15	48	63
Elementary Education	26	85	111
Junior High Education	1		1
Secondary Education	39	48	87
Adult and Continuing Education	111	110	221
TEACHING FIELDS	659	669	1328
Agricultural Education	39	8	47
Art Education	26	32	58
Business Education	34	28	62
English Education	26	50	76
Foreign Languages Education	15	10	25
Health Education	42	57	99
Home Economics Education	1	24	25
Industrial Arts Education	17	2	19
Mathematics Education	22	40	62
Music Education	71	41	112
Nursing Education		17	17
Physical Education	130	106	236
Reading Education	49	120	169
Science Education	53	25	78
Social Science Education	17	22	39
Speech Education		2	2
Trade and Industrial Education	83	55	138
Other Teaching Fields	34	30	64
Education, General	172	175	347
Education, Other	143	159	302
OTHER AND UNSPECIFIED	13	9	22

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

TABLE 1A Number Of Doctorate Recipients by Citizenship, Racial/Ethnic Group, and Subfield, 1983[1/]

Subfield of Doctorate	Total Doctorates	Non-U.S. Citizens Temp. Visas	U.S. Citizens and Non-U.S. with Permanent Visas Racial/Ethnic Group[2/]								
			Total	Amer. Ind.	Asian	Black	White	Puerto Rican	Mex-ican/ Amer.	Other His-panic	Other & Unk
TOTAL ALL FIELDS	31190[3/]	4495	25564	80	1040	1000	22189	127	179	298	651
PHYSICAL SCIENCES	4424	926	3357	9	216	32	2935	10	8	26	121
MATHEMATICS	701	209	457		34	3	395			7	18
Applied Mathematics	125	29	93		6		85			1	1
Algebra	55	16	39		1		36			1	1
Analysis and Functional Analysis	76	28	48		2		44				2
Geometry	44	18	26		2		23			1	
Logic	21	4	17				16				1
Number Theory	19	7	12		2		9				1
Probability and Math Statistics	151	46	102		16	1	82				3
Topology	44	10	34		1	1	31				1
Computing Theory and Practice	12	3	9				8				1
Operations Research	20	10	10				9			1	
Mathematics, General	86	23	34		1	1	24			2	6
Mathematics, Other	48	15	33		3		28			1	1
COMPUTER SCIENCE	285	72	205	1	20	3	172				9
Computer Sciences	263	68	187		17	2	160				8
Information Sciences and Systems	22	4	18	1	3	1	12				1
PHYSICS AND ASTRONOMY	1042	256	759	3	53	9	654	1	2	2	35
Astronomy	50	5	45				43				2
Astrophysics	65	7	58	1	1		52				4
Acoustics	14	2	12		1		11				
Atomic and Molecular	71	18	53		9	1	41				2
Electron	1		1				1				
Elementary Particles	136	40	96	1	4	1	84		1		5
Fluids	15	2	13		1		11				1
Nuclear	90	19	70		3	2	62				3
Optics	50	19	31		3		27			1	
Plasma	72	17	54		4		47		1		2
Polymer	10	4	6		1		5				
Solid State	221	55	166	1	13	3	144				5
Physics, General	150	53	76		6	2	57			1	10
Physics, Other	97	15	78		7		69	1			1
CHEMISTRY	1759	283	1424	3	83	16	1262	8	4	9	39
Analytical	264	30	233	1	11		214	1	1	2	3
Inorganic	215	25	190	1	5	2	176				6
Nuclear	13	3	10				9				1
Organic	503	84	418		19	5	376	3	2	6	7
Pharmaceutical	78	18	56	1	8		47				
Physical	311	51	259		15	5	230	3		1	5
Polymer	62	16	44		7		36	1			
Theoretical	48	10	38		2		35				1
Chemistry, General	177	26	111		13	2	84				12
Chemistry, Other	88	20	65		3	2	55		1		4
EARTH, ATMOSPHERIC AND MARINE SCI	637	106	512	2	26	1	452	1	2	8	20
Atmospheric Physics and Chemistry	21	2	19		2		17				
Atmospheric Dynamics	16	5	11		2		9				
Meteorology	18	4	13		1		11			1	
Atmos and Meteorological Sci, Gen	16	3	13		1		11				1
Atmos and Meteorological Sci, Other	26	3	20		2	1	16				1
Geology	105	15	83	1	1		75			1	5
Geochemistry	48	3	45		1		41			1	2
Geophysics and Seismology	75	16	56		3		52				1
Paleontology	17		17				15				2
Mineralogy, Petrology	24	4	20				19				1
Stratigraphy, Sedimentation	25	5	20				19				1
Geomorphology and Glacial Geology	10	1	9				9				
Applied Geology	8	2	6		1		5				
Geological Sciences, General	15	2	11		3		6				2
Geological Sciences, Other	21	1	17				15				2
Environmental Sciences	50	9	41		4		35		1	1	
Hydrology and Water Resources	20	8	12		1		9		1	1	
Oceanography	87	16	71	1	2		64			3	1
Marine Sciences	22	4	18		2		15	1			
Physical Sciences, Other	13	3	10				9				1
ENGINEERING	2780	1169	1481	1	247	29	1127	6	4	19	48
Aerospace, Aeronaut & Astronaut	106	49	53		9	1	40				3
Agricultural	58	33	25		4	1	20				
Bioengineering and Biomedical	73	14	58		6		46			1	5
Ceramic	24	8	16		3		13				
Chemical	349	138	200		32	3	152	2	1	3	7
Civil	354	187	154		21	5	118	2	1	4	3
Communications	25	7	17		5		11				1
Computer	83	36	45		9		36				

1/*Subfield data may not be compatible with earlier years because of changes in the field taxonomy.* Refer to Technical Appendix, p. 40.

2/For more detailed explanation of racial/ethnic groups see items 8 and 9 on questionnaire on page 50 and description on page 23.

3/Includes 1,131 individuals who did not report their citizenship at time of doctorate.

TABLE 1A (Continued)

Subfield of Doctorate	Total Doctorates	Non-U.S. Citizens Temp. Visas	U.S. Citizens and Non-U.S. With Permanent Visas Racial/Ethnic Group[2/]								
			Total	Amer. Ind.	Asian	Black	White	Puerto Rican	Mex-ican/ Amer.	Other His-panic	Other & Unk
Electrical, Electronics	517	201	287		58	2	214	1	1	2	9
Engineering Mechanics	68	32	33		5		28				
Engineering Physics	10	2	8			1	6				1
Engineering Science	30	14	16		1		14				1
Environmental Health Engineering	43	9	33		3	1	28			1	
Industrial	86	38	45		8	2	33			1	1
Materials Science	157	58	84		17	1	64		1	1	
Mechanical	311	141	159		29	5	118			2	5
Metallurgical	87	40	45		8	4	31				2
Mining and Mineral	22	9	13		2	1	8				1
Naval Architecture, Marine Eng	4	4									
Nuclear	103	49	46		7		35	1		1	2
Ocean	12	6	4				4				
Operations Research	44	17	25		4		19			2	
Petroleum	22	13	4				3				1
Polymer	21	10	11		3	1	7				
Systems	57	23	31		5		26				
Engineering, General	30	6	14		3		9				2
Engineering, Other	84	25	55	1	5	1	44				4
LIFE SCIENCES	5540	775	4619	7	239	74	4132	16	10	33	108
BIOLOGICAL SCIENCES	3732	322	3317	4	164	46	2988	12	7	24	72
Biochemistry	646	54	569		37	7	514	1	2	5	3
Biophysics	88	11	74		9		61	1		1	2
Bacteriology	10	1	8		1		7				
Plant Genetics	19	9	10				10				
Plant Pathology	29	3	26			1	22				3
Plant Physiology	67	12	55		3	1	50				1
Botany, Other	116	9	104				101			2	1
Anatomy	104	7	94		2		87			1	4
Biometrics and Biostatistics	45	4	38		4	3	31				
Cell Biology	119	7	108		5	2	97	1			3
Ecology	183	13	168		2	1	160	1		1	3
Embryology	13	2	11				11				
Endocrinology	28	3	25		2		21				2
Entomology	141	31	107		4		102				1
Immunology	154	17	137		5	1	124	2	1		4
Molecular Biology	225	16	208		9	2	184			3	10
Microbiology	308	27	275		16	7	245	2	2	1	2
Neurosciences	134	9	125		3	2	110	2	1	1	6
Nutritional Sciences	111	16	93		13	3	75			1	1
Parasitology	9	2	7				7				
Toxicology	60	4	56		3	1	52				
Human and Animal Genetics	95	3	90		4	1	82	1	1		1
Human and Animal Pathology	96	14	81	1	7	3	65			1	4
Human and Animal Pharmacology	217	13	197		11		183			2	1
Human and Animal Physiology	243	19	221	1	5	3	204			1	7
Zoology, Other	192	5	184	1	7	4	169	1		1	1
Biological Sciences, General	174	9	146	1	9	3	125			1	7
Biological Sciences, Other	106	2	100		3	1	89			2	5
HEALTH SCIENCES	636	87	529	2	38	16	454	4	1	1	13
Audiology and Speech Pathology	113	3	110		3	4	98				5
Environmental Health	38	8	27		4		22	1			
Public Health	51	6	44		1	3	35	1	1		3
Epidemiology	76	11	65		1		63				1
Nursing	126	8	112		4	2	103	1			2
Pharmacy	81	22	59		19		37			1	2
Veterinary Medicine	45	18	27		1	1	25				
Health Sciences, General	20	1	14		2		12				
Health Sciences, Other	86	10	71	2	3	6	59	1			
AGRICULTURAL SCIENCES	1172	366	773	1	37	12	690		2	8	23
Agricultural Economics	157	59	88		4		77		1	3	3
Animal Breeding and Genetics	25	7	18		1		17				
Animal Nutrition	56	11	43				43				
Animal Sciences, Other	92	31	59		2	3	53				1
Agronomy	149	60	87		2	4	74		1	3	3
Plant Breeding and Genetics	71	19	52			1	50				1
Plant Pathology	92	25	67		1		65				1
Plant Sciences, Other	16	4	11				9			1	1
Food Sciences	141	44	89		18		62			1	8
Soil Sciences	85	36	49		1		47				1
Horticulture Science	72	22	47		2	2	41				2
Fisheries Science	36	9	27		3	1	23				
Wildlife Management	31	6	24		1		23				
Forestry Science	90	20	68	1	2	1	62				2
Agriculture, General	7	4	3				3				
Agriculture, Other	52	9	41				41				

TABLE 1A (Continued)

Subfield of Doctorate	Total Doctorates	Non-U.S. Citizens Temp. Visas	U.S. Citizens and Non-U.S. with Permanent Visas Racial/Ethnic Group[2/]								
			Total	Amer. Ind.	Asian	Black	White	Puerto Rican	Mex-ican/ Amer.	Other His-panic	Other & Unk
SOCIAL SCIENCES (INCL PSYCH)	6055	570	5210	12	109	199	4596	19	46	85	144
Anthropology	373	24	335	2	2	7	306	1	4	3	10
Area Studies	20	1	15			1	12	1			1
Criminology	49	4	45		1	2	38		3		1
Demography	26	12	13				13				
Economics	792	205	549		36	15	475		2	6	15
Econometrics	21	9	12			1	11				
Geography	121	25	93			3	83			2	5
International Relations	77	16	59		1	5	45			4	4
Political Science and Government	397	55	322	1	8	18	266	1	5	5	18
Public Policy Studies	68	12	55		1	2	48		2		2
Sociology	525	64	436		10	26	377	5	4	2	12
Statistics	47	23	19		2		16				1
Urban Studies	74	19	45		2	4	31	2	1		5
Social Sciences, General	17	2	14		1	1	12				
Social Sciences, Other	141	20	113		1	2	100		1	4	5
PSYCHOLOGY	3307	79	3085	9	44	112	2763	9	24	59	65
Clinical	1209	9	1162	4	13	47	1030	7	10	26	25
Cognitive	65	4	61		1		56		1	2	1
Comparative	11		11		1		9				1
Counseling	432	10	419	1	5	15	381	1	3	7	6
Developmental	219	4	214	1	5	10	191		1	4	2
Experimental	209	13	191	1	2	2	178			4	4
Educational	153	6	143		3	2	130		1	1	6
Industrial and Organizational	90	2	88		1	3	82			1	1
Personality	32		31			1	30				
Physiological	94	7	85		4	1	80				
Psychometrics	10		10				10				
Quantitative	14		14		1		13				
School	121		118			1	114		1	1	1
Social	191	11	178		3	15	148	1	4	5	2
Psychology, General	287	8	216	1	3	11	177		3	7	14
Psychology, Other	170	5	144	1	2	4	134			1	2
HUMANITIES	3494	257	3098	6	47	79	2769	23	22	68	84
History, American	224	5	217		2	12	198	1	1		3
History, European	168	6	162		3	1	149			3	6
History of Science	13		12				12				
History, General	58	3	42			2	34		1	2	3
History, Other	153	23	126		3	4	111	1	4	1	2
Classics	44	2	39				38				1
Comparative Literature	124	14	108		5	3	93	1	2	3	1
Linguistics	164	45	109	1	5	4	92	1		2	4
Speech and Debate	48		47		1	1	45				
Letters, General	3		3				3				
Letters, Other	19		19				18				1
American Studies	98		95	2	1	7	81				4
Archeology	30	3	27				27				
Art History and Criticism	150	12	136		5	1	120		1	1	8
Music	391	18	345		4	6	322	1	2	1	9
Philosophy	242	18	215			2	205			1	7
Religion	173	7	162	1		4	150			1	6
Theatre	107	4	99		1	1	93		1		3
LANGUAGE AND LITERATURE	1218	92	1073	2	17	29	921	18	10	53	23
American	173	5	168		4	12	143	1	1	3	4
English	541	40	480	2	5	11	443		2	3	14
French	121	11	107		1	3	98			4	1
German	77	8	66			1	64				1
Italian	22		22				22				
Spanish	161	15	135			2	66	17	7	43	
Russian	24		22				22				
Slavic	9	1	7				7				
Chinese	16	3	13		2		10				1
Japanese	5		5		2		3				
Hebrew	11	1	8		1		7				
Arabic	8	3	4				3				1
Other Languages	50	5	36		2		33				1
Humanities, General	17		17			1	14				2
Humanities, Other	50	5	45			1	43				1

TABLE 1A (Continued)

Subfield of Doctorate	Total Doctorates	Non-U.S. Citizens Temp. Visas	U.S. Citizens and Non-U.S. with Permanent Visas Racial/Ethnic Group[2/]								
			Total	Amer. Ind.	Asian	Black	White	Puerto Rican	Mex-ican/ Amer.	Other His-panic	Other & Unk
PROFESSIONAL FIELDS	1728	240	1414	1	64	89	1219	6	7	11	37
BUSINESS ADMINISTRATION	755	151	581		44	20	503		2	2	10
Accounting	163	23	139		4	5	128			1	1
Banking and Finance	94	25	69		12	1	55				1
Business Admin and Management	180	35	131		7	3	117		1		3
Business Economics	25	10	15		1	1	13				
Marketing Management and Research	73	12	61		5	6	49				1
Business Statistics	8	2	6		2		4				
Operations Research	38	12	26		5		21				
Organizational Behavior	53	9	44				44				
Business and Management, General	36	8	25		4	1	19				1
Business and Management, Other	85	15	65		4	3	53		1	1	3
COMMUNICATIONS	252	21	217		5	7	191		2	1	11
Communications Research	51	6	45		1	1	42				1
Journalism	21		21				20			1	
Radio and Television	27	4	22				20				2
Communications, General	60	5	53		1	4	41				7
Communications, Other	93	6	76		3	2	68		2		1
OTHER PROFESSIONAL FIELDS	721	68	616	1	15	42	525	6	3	8	16
Architecture, Environmental Design	34	16	15		2		13				
Home Economics	79	2	76			7	67	1			1
Law	19	10	6		1	1	3			1	
Library and Archival Science	51	8	37		2	5	30				
Public Administration	114	10	95		1	9	80		1	1	3
Social Work	184	5	174		6	15	140	3	2	1	7
Theology	223	16	198	1	3	5	178	2		4	5
Professional Fields, General											
Professional Fields, Other	17	1	15				14			1	
EDUCATION	7147	555	6369	44	118	516	5399	47	82	56	107
Curriculum and Instruction	856	76	774	4	15	48	661	10	17	9	10
Educational Admin and Supervision	1619	69	1531	10	17	177	1272	3	22	10	20
Educational Media	88	19	69		4	5	59	1			
Educational Statistics and Research	86	7	77	2	2	4	69				
Educational Testing, Eval and Meas	51	9	42		2	1	37			2	
Educational Psychology	274	11	259	1	6	8	231	1	2	5	5
School Psychology	88	2	86	1	2	4	76		1	2	
Social Foundations	142	13	129		1	14	108		2		4
Special Education	349	14	333	4	6	22	288	2	1	5	5
Student Counseling, Personnel Serv	502	31	459	1	8	37	390	3	6	4	10
Higher Education	632	55	559	3	15	51	463	8	9	3	7
Pre-elementary Education	63	5	51	1	1	3	44		2		
Elementary Education	111	1	106	3	1	6	92	1	1	1	1
Junior High Education	1		1				1				
Secondary Education	87	7	77	1	2	7	63		2	1	1
Adult and Continuing Education	221	17	200	3	2	24	166		1		4
TEACHING FIELDS	1328	149	1156	8	22	67	1016	10	3	10	20
Agricultural Education	47	17	30	1	1	2	23			2	1
Art Education	58	7	49			5	42				2
Business Education	62	6	56			5	51				
English Education	76	4	70			5	64				1
Foreign Languages Education	25	5	20		3		16			1	
Health Education	99	6	93		2	5	84				2
Home Economics Education	25	2	23			2	21				
Industrial Arts Education	19	4	15			1	14				
Mathematics Education	62	6	53	1	1	1	49			1	
Music Education	112	4	103		4	7	87	1	1	2	1
Nursing Education	17		17		2		15				
Physical Education	236	35	199	2	1	4	180	6		1	5
Reading Education	169	4	160	1	2	10	141		2	2	2
Science Education	78	15	63	1	3	3	54	1			1
Social Science Education	39	2	36			3	31				2
Speech Education	2		2				2				
Trade and Industrial Education	138	17	118	2	2	12	99			1	2
Other Teaching Fields	64	15	49		1	2	43	2			1
Education, General	347	36	209	1	5	16	163	3	3	2	16
Education, Other	302	34	251	1	7	22	200	5	10	2	4
OTHER AND UNSPECIFIED	22	3	16			2	12				2

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

TABLE 2: Statistical Profile of Doctorate Recipients by Field of Doctorate, 1983[1/]

Total All Doctorates

		1983 Total	Physics and Astronomy	Chemistry	Earth, Atmospheric and Marine Sciences	Physical Sciences	Mathematics	Computer Sciences	Engineering	EMP Fields	Biochemistry	Other Biosciences	Biosciences	Health Sciences	Agricultural Sciences	Life Sciences
Number in Field		31190	1042	1759	637	3438	701	285	2780	7204	646	3086	3732	636	1172	5540
Male	%	66.4	92.9	83.1	84.8	86.4	83.9	87.4	95.5	89.7	70.0	66.4	67.0	47.3	87.1	69.0
Female		33.6	7.1	16.9	15.2	13.6	16.1	12.6	4.5	10.3	30.0	33.6	33.0	52.7	12.9	31.0
U.S. Citizenship	%	77.9	67.9	77.0	75.7	74.0	58.6	62.5	41.8	59.6	83.4	86.3	85.8	78.1	82.1	79.9
Foreign Citizenship		18.5	29.5	20.0	21.4	23.1	36.4	34.7	53.5	36.6	13.0	11.4	11.7	18.7	35.1	17.4
Unknown		3.6	2.6	3.0	3.0	2.9	5.0	2.8	4.7	3.8	3.6	2.3	2.5	3.1	2.8	2.6
Married	%	59.1	46.7	53.9	59.3	52.7	45.4	61.4	61.2	55.6	54.3	54.6	54.5	59.0	70.2	58.4
Not Married		35.8	49.6	41.6	35.6	42.9	48.5	35.1	32.5	39.1	41.8	41.5	41.6	35.4	25.2	37.4
Unknown		5.1	3.6	4.5	5.0	4.3	6.1	3.5	6.3	5.2	3.9	3.9	3.9	5.7	4.6	4.3
Median Age at Doctorate		32.8	29.5	28.6	31.1	29.3	29.6	30.9	30.8	30.0	29.2	30.1	29.9	33.9	31.8	30.6
Percent with Bacc in Same Field as Doctorate		55.6	80.1	83.5	45.1	75.4	78.0	21.8	74.0	73.0	25.2	64.2	57.4	46.2	58.3	56.3
Percent with Masters		80.5	68.0	38.4	76.3	54.4	74.9	86.0	88.3	70.7	28.0	54.2	49.7	84.7	90.6	62.4
Median Time Lapse From Bacc to Doct																
Total Time	Yrs	9.8	7.2	6.2	8.4	7.0	7.4	8.5	8.0	7.4	6.9	7.6	7.4	10.9	8.5	7.9
Registered Time		6.6	6.4	5.4	6.7	5.9	6.1	6.5	5.7	5.9	5.9	6.2	6.2	6.5	5.8	6.1
Postdoctoral Study Plans	%	19.3	48.0	42.6	31.4	42.1	19.5	7.0	14.2	27.8	80.3	63.1	66.1	11.6	16.6	49.4
Fellowship		9.2	15.7	18.4	13.3	16.7	8.1	2.1	3.6	10.2	46.4	35.0	37.0	6.6	4.8	26.7
Research Assoc		7.5	30.9	22.4	17.1	24.0	8.4	4.9	8.7	15.8	25.4	19.8	20.7	3.5	10.8	16.7
Traineeship		1.0	.7	.7	.6	.7	1.3	.0	1.5	1.0	3.1	1.6	1.9	.5	.5	1.4
Other		1.6	.7	1.1	.3	.8	1.7	.0	.5	.7	5.4	6.7	6.5	1.1	.4	4.6
Planned Employment After Doctorate	%	74.4	47.2	51.8	63.6	52.6	72.3	87.7	77.5	65.5	14.9	32.3	29.3	81.3	76.9	45.3
Educ Institution		43.8	15.3	9.3	25.3	14.0	55.2	44.9	28.3	24.8	4.3	16.7	14.5	45.6	39.8	23.4
Industry/Business		14.2	23.0	36.8	21.0	29.7	10.8	35.1	37.3	31.0	7.3	7.0	7.1	12.9	16.0	9.6
Government		7.5	6.8	3.2	13.2	6.1	3.7	4.9	8.5	6.8	1.4	4.8	4.2	10.4	14.4	7.1
Nonprofit		4.9	.7	.9	1.7	1.0	.7	.7	1.4	1.1	.5	1.5	1.3	7.4	2.0	2.2
Other & Unknown		3.9	1.4	1.7	2.4	1.7	1.9	2.1	1.9	1.8	1.4	2.3	2.1	5.0	4.8	3.0
Postdoct Status Unknown	%	6.3	4.8	5.6	5.0	5.2	8.1	5.3	8.2	6.7	4.8	4.6	4.6	7.1	6.6	5.3
Definite Postdoctoral Study		14.0	36.5	32.0	22.0	31.5	13.7	4.2	8.2	19.7	69.2	49.9	53.3	8.3	9.5	38.8
Seeking Postdoctoral Study		5.3	11.5	10.6	9.4	10.6	5.8	2.8	6.0	8.1	11.1	13.2	12.8	3.3	7.1	10.5
Definite Employment		53.6	32.1	40.3	50.9	39.8	54.9	67.0	58.0	49.4	9.9	20.9	19.0	62.3	54.9	31.6
Seeking Employment		20.8	15.1	11.5	12.7	12.8	17.4	20.7	19.5	16.2	5.0	11.4	10.3	19.0	21.9	13.8
Employment Activity After Doctorate																
Primary Activity																
R & D	%	25.4	70.4	77.4	54.0	70.2	37.1	61.8	61.3	62.1	60.9	48.2	49.4	32.3	55.1	47.6
Teaching		39.2	22.4	13.3	22.2	17.6	54.0	25.1	24.5	25.1	21.9	29.5	28.8	36.4	21.3	27.7
Administration		13.6	.9	1.6	3.7	1.9	.5	2.6	1.9	1.8	7.8	3.4	3.8	12.6	2.8	5.4
Prof. Services		13.7	1.2	2.1	8.3	3.4	1.8	2.6	5.3	4.0	4.7	12.2	1.6	12.6	7.0	10.1
Other		3.0	2.4	.8	6.8	2.6	1.3	2.6	2.5	2.4	1.6	2.5	2.4	1.8	6.1	3.6
Activity Unknown		5.1	2.7	4.8	4.9	4.3	5.2	5.2	4.5	4.6	3.1	4.2	4.1	4.3	7.8	5.5
Secondary Activity																
R & D		26.2	17.3	10.9	21.9	15.1	45.2	24.6	22.6	22.3	12.5	26.8	25.5	32.8	20.8	25.4
Teaching		12.5	8.4	3.2	12.3	6.7	22.1	28.8	13.8	12.7	7.8	16.3	15.5	15.7	19.3	16.9
Administration		9.3	7.8	14.5	10.5	11.9	2.1	7.3	8.2	8.9	18.8	11.6	12.3	11.9	8.9	10.9
Prof. Services		7.8	3.6	6.1	6.8	5.6	3.1	4.2	5.3	5.1	4.7	6.0	5.9	9.1	6.2	6.7
Other		2.1	.6	.7	.9	.7	.5	.5	1.1	.8	.0	.8	.7	.3	1.4	.9
No Secondary Activity		37.2	59.7	59.8	42.6	55.7	21.8	29.3	44.6	45.6	53.1	34.3	36.0	26.0	35.7	33.6
Unknown		5.1	2.7	4.8	4.9	4.3	5.2	5.2	4.5	4.6	3.1	4.2	4.1	4.3	7.8	5.5
Region of Employment After Doctorate																
New England	%	6.1	7.8	5.5	3.7	5.6	8.1	5.8	5.3	5.7	4.7	5.7	5.6	5.1	2.5	4.3
Middle Atlantic		14.4	17.9	22.6	5.9	17.5	12.2	21.5	14.1	15.6	20.3	11.9	12.7	15.2	3.9	10.0
East No Central		13.3	7.5	19.5	7.4	13.7	14.3	12.6	11.5	12.7	15.6	13.3	13.5	16.2	9.0	12.5
West No Central		6.2	3.0	6.3	4.6	5.1	7.8	2.6	3.5	4.6	10.9	7.0	7.3	6.1	10.9	8.3
South Atlantic		14.8	14.0	13.8	13.3	13.7	12.5	8.4	11.0	12.1	15.6	19.1	18.8	15.7	12.9	15.9
East So Central		4.3	4.8	1.6	3.7	2.9	4.2	2.6	2.9	3.0	4.7	2.3	2.5	3.8	4.2	3.4
West So Central		8.4	5.7	7.9	18.8	9.9	7.3	10.5	7.7	8.7	3.1	7.8	7.3	8.1	6.8	7.3
Mountain		4.5	5.7	3.1	9.9	5.3	4.2	4.2	4.7	4.9	3.1	3.6	3.5	5.8	5.4	4.7
Pacific & Insular		11.0	17.9	10.3	13.9	13.0	14.0	18.8	15.5	14.6	7.8	10.9	10.6	9.8	8.5	9.7
Foreign		10.0	13.7	5.5	14.5	9.6	10.6	8.9	18.5	13.7	10.9	13.2	13.0	10.6	32.8	19.7
Region Unknown		7.1	2.1	3.9	4.3	3.6	4.9	4.2	5.3	4.5	3.1	5.3	5.1	3.8	3.1	4.1

1/Refer to explanatory note on page 22 and the description of doctoral fields inside back cover.

TABLE 2. (Continued)

Total All Doctorates

Psychology	Economics	Anthropology and Sociology	Political Sci. and International Rel.	Other Social Sciences	Social Sciences Incl. Psychology	Total Sciences	History	Eng. and Amer. Lang. and Lit.	Foreign Lang. and Lit.	Other Humanities	Humanities	Business and Management	Other Professional Fields	Education	Total Non-Sciences	Other or Unspecified 2/
3307	813	898	474	563	6055	18799	616	714	504	1660	3494	755	973	7147	12369	22
52.5	83.6	56.5	79.3	67.0	60.7	74.3	67.7	47.3	43.3	59.7	56.2	83.6	60.9	49.6	54.4	59.1
47.5	16.4	43.5	20.7	33.0	39.3	25.7	32.3	52.7	56.7	40.3	43.8	16.4	39.1	50.4	45.6	40.9
91.4	61.7	83.0	76.4	69.1	82.9	73.1	88.0	88.7	74.2	86.2	85.3	69.4	82.7	87.1	85.1	
4.3	33.6	12.7	19.0	25.0	12.5	23.2	8.8	8.4	19.4	9.8	10.7	27.5	12.0	9.8	11.3	
4.3	4.7	4.3	4.6	5.9	4.5	3.7	3.2	2.9	6.3	4.0	4.0	3.0	5.2	3.1	3.5	
52.6	59.7	56.2	57.8	59.1	55.1	56.3	58.8	53.9	53.8	52.9	54.3	70.3	60.6	67.5	63.4	
41.4	34.4	39.1	34.6	33.0	38.8	38.5	36.5	41.3	39.9	41.1	40.2	25.2	31.7	28.1	31.6	
6.0	5.9	4.7	7.6	7.8	6.1	5.2	4.7	4.8	6.3	6.0	5.6	4.5	7.7	4.4	5.0	
32.0	31.3	34.2	33.1	34.0	32.4	30.9	34.4	33.6	34.3	33.8	34.0	34.4	36.1	37.8	36.3	
65.4	63.2	55.1	55.9	23.3	58.9	63.6	61.7	66.9	58.5	53.5	58.4	41.5	21.9	39.5	43.6	
80.4	76.5	87.0	85.0	90.2	82.1	72.0	90.3	88.1	90.3	87.7	88.6	89.8	93.5	96.3	93.5	
8.9	8.5	10.7	9.9	10.5	9.3	8.1	11.4	10.8	11.3	11.0	11.1	11.1	12.7	14.1	12.9	
6.6	6.3	8.0	7.5	7.0	6.8	6.2	8.5	7.8	8.3	7.7	8.0	6.7	7.1	7.4	7.5	
17.6	3.7	13.3	5.7	7.3	13.2	29.4	7.8	3.9	5.4	5.6	5.6	2.1	3.2	3.3	3.9	
10.2	1.6	7.0	3.4	2.5	7.3	14.1	4.2	2.0	4.6	3.3	3.4	.5	1.5	1.1	1.7	
3.0	1.0	3.9	1.7	3.0	2.7	11.9	1.5	.6	.6	.8	.9	.9	.7	.9	.9	
3.0	.5	.7	.2	.9	1.9	1.4	.0	.0	.0	.1	.1	.4	.2	.4	.3	
1.5	.6	1.7	.4	.9	1.3	2.0	2.1	1.4	.2	1.3	1.3	.3	.7	.8	.9	
75.8	89.3	79.5	85.0	84.0	79.7	64.1	84.9	90.1	84.9	86.0	86.5	92.6	88.8	91.5	89.9	
26.6	62.1	53.2	58.0	50.1	40.0	29.3	57.8	77.3	69.8	66.8	67.8	75.8	54.5	65.6	66.0	
15.4	10.6	8.0	7.4	11.2	12.6	18.8	6.8	5.7	5.8	7.0	6.5	11.0	8.7	7.1	7.3	
11.7	10.6	5.8	11.4	12.1	10.7	8.1	6.3	1.0	2.4	1.6	2.4	3.3	8.4	8.7	6.6	
15.5	3.0	6.2	3.0	4.8	10.4	4.4	5.7	1.5	2.0	6.0	4.4	1.6	14.4	5.4	5.6	
6.7	3.1	6.2	5.3	5.9	5.9	3.5	8.3	4.5	5.0	4.7	5.3	.9	2.8	4.7	4.5	
6.6	7.0	7.2	9.3	8.7	7.1	6.4	7.3	6.0	9.7	8.4	7.9	5.3	8.0	5.2	6.2	
12.6	2.3	6.8	2.5	3.9	8.8	21.8	4.2	1.5	3.4	2.4	2.7	1.9	2.3	1.8	2.1	
5.0	1.4	6.5	3.2	3.4	4.4	7.6	3.6	2.4	2.0	3.2	2.9	.3	.9	1.5	1.8	
50.7	74.4	49.2	58.2	54.2	54.6	45.8	51.0	58.4	55.6	57.4	56.2	82.5	69.8	67.4	65.3	
25.1	14.9	30.3	26.8	29.8	25.1	18.3	33.9	31.7	29.4	28.6	30.3	10.1	19.0	24.1	24.6	
14.5	33.4	23.1	16.7	21.0	19.9	43.0	12.4	3.4	4.6	6.0	6.3	18.8	8.0	5.2	6.8	
17.9	53.1	51.4	59.4	49.8	35.2	29.5	59.6	80.1	75.4	73.9	73.1	65.7	51.3	37.7	49.6	
4.9	2.6	8.6	10.1	8.2	5.7	4.0	9.9	6.5	6.1	5.4	6.4	7.1	12.5	34.6	23.8	
57.5	4.3	6.6	5.1	12.8	32.5	16.2	6.4	2.9	3.6	6.0	5.0	3.0	16.2	13.7	11.0	
1.5	3.0	4.3	4.0	3.9	2.6	2.7	8.0	3.6	4.3	4.7	4.9	1.9	4.7	2.7	3.3	
3.6	3.6	6.1	4.7	4.3	4.1	4.6	3.8	3.6	6.1	4.1	4.2	3.5	7.4	6.1	5.6	
23.7	46.3	37.6	44.6	37.4	32.7	26.9	32.8	36.9	47.9	33.1	35.9	53.1	29.3	16.9	25.4	
15.6	15.5	12.0	8.7	13.4	14.3	14.2	8.9	5.3	5.4	7.6	7.0	15.2	12.4	11.3	10.7	
11.6	6.0	8.1	8.0	7.2	9.4	9.5	6.1	7.4	3.2	10.0	7.8	4.5	11.3	9.8	9.0	
7.5	3.3	4.8	2.5	6.2	5.8	5.7	3.5	3.6	3.6	5.8	4.6	4.0	9.7	12.9	9.9	
2.6	1.7	1.4	.7	2.6	2.1	1.3	3.2	3.4	1.8	6.6	4.7	1.3	3.2	2.2	2.8	
35.3	23.6	30.1	30.8	28.9	31.5	37.7	41.7	39.8	32.1	32.9	35.7	18.3	26.7	40.7	36.6	
3.6	3.6	6.1	4.7	4.3	4.1	4.6	3.8	3.6	6.1	4.1	4.2	3.5	7.4	6.1	5.6	
8.5	9.8	5.2	7.2	6.9	8.0	6.3	9.6	6.5	12.1	8.0	8.5	6.3	3.7	4.9	5.8	
21.0	17.4	15.4	13.0	13.4	18.2	15.5	10.8	14.1	16.8	13.7	13.8	12.5	12.5	13.2	13.2	
13.7	11.7	12.7	11.2	8.9	12.6	12.6	11.5	16.5	14.6	11.9	13.2	15.1	15.0	14.2	14.1	
5.2	5.3	4.5	2.9	4.6	4.9	5.4	3.5	5.8	6.4	8.5	6.8	5.3	7.4	7.4	7.1	
12.9	19.5	17.0	24.3	16.7	16.0	14.3	19.1	13.7	10.7	14.3	14.4	15.6	14.0	15.8	15.3	
4.2	2.5	4.1	2.2	2.6	3.5	3.3	4.5	4.8	5.0	4.5	4.6	5.5	8.0	5.2	5.3	
7.9	4.6	6.6	5.1	6.2	6.7	7.6	10.8	11.5	5.4	7.7	8.7	10.4	11.2	8.8	9.1	
3.9	2.5	6.3	5.1	4.9	4.2	4.6	3.2	2.9	2.9	3.6	3.3	5.5	3.4	4.8	4.4	
12.7	7.4	9.7	10.9	12.5	11.2	12.3	9.9	9.8	13.6	11.4	11.2	10.3	9.6	9.1	9.7	
1.8	14.7	12.0	11.6	17.0	7.7	12.7	7.3	6.7	5.0	8.4	7.4	10.3	8.4	6.3	7.1	
8.2	4.6	6.6	6.5	6.2	7.0	5.4	9.9	7.7	7.5	8.1	8.2	3.4	6.9	10.3	9.0	

2/Statistics are not presented for this group because too few records contained the specified data.

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

TABLE 2: Statistical Profile of Doctorate Recipients by Field of Doctorate, 1983[1/]

Doctorates: Men

		1983 Total	Physics and Astronomy	Chemistry	Earth, Atmospheric and Marine Sciences	Physical Sciences	Mathematics	Computer Sciences	Engineering	EMP Fields	Biochemistry	Other Biosciences	Biosciences	Health Sciences	Agricultural Sciences	Life Sciences
Total Male		20705	968	1462	540	2970	588	249	2656	6463	452	2049	2501	301	1021	3823
Male as a Percent of Total Doctorates	%	66.4	92.9	83.1	84.8	86.4	83.9	87.4	95.5	89.7	70.0	66.4	67.0	47.3	87.1	69.0
U.S. Citizenship	%	72.9	67.9	76.7	74.3	73.4	57.0	60.6	40.6	57.9	85.0	85.4	85.3	70.1	80.3	77.5
Foreign Citizenship		23.3	29.3	20.2	22.6	23.6	37.6	36.1	54.7	38.2	11.5	12.2	12.1	26.6	36.7	19.8
Unknown		3.8	2.8	3.1	3.1	3.0	5.4	3.2	4.6	3.9	3.5	2.4	2.6	3.3	2.9	2.7
Married	%	62.3	46.9	54.9	60.6	53.3	44.9	60.2	61.4	56.2	53.5	57.6	56.9	62.8	73.7	61.8
Not Married		32.3	49.3	40.4	35.0	42.3	48.3	35.7	32.3	38.5	42.7	38.0	38.9	30.9	21.6	33.6
Unknown		5.4	3.8	4.8	4.4	4.4	6.8	4.0	6.3	5.4	3.8	4.4	4.3	6.3	4.7	4.6
Median Age at Doctorate		32.1	29.5	28.6	31.2	29.4	29.6	30.8	30.8	30.0	29.2	30.1	29.9	32.3	31.8	30.5
Percent with Bacc in Same Field as Doctorate		57.5	80.0	83.4	45.9	75.5	76.5	22.9	75.5	73.5	26.3	63.3	56.6	33.9	61.4	56.1
Percent with Masters		78.8	67.5	38.0	78.9	55.1	74.0	85.5	88.6	71.7	26.3	56.2	50.8	77.7	91.0	83.6
Median Time Lapse From Bacc to Doct																
Total Time	Yrs	9.1	7.2	6.2	8.5	7.0	7.3	8.4	8.0	7.4	6.9	7.5	7.4	9.5	8.4	7.7
Registered Time		6.5	6.4	5.4	6.7	5.9	6.1	6.5	5.7	5.9	5.9	6.3	6.2	6.2	5.8	6.1
Postdoctoral Study Plans	%	20.9	47.8	43.0	31.9	42.6	20.9	7.2	13.9	27.4	79.9	61.8	65.1	14.0	16.2	48.0
Fellowship		9.6	15.9	18.5	13.9	16.8	8.7	2.0	3.5	10.0	47.1	33.6	36.1	7.6	4.5	25.4
Research Assoc		8.7	30.5	22.6	17.2	24.2	8.8	5.2	8.5	15.6	23.7	19.0	19.9	4.3	10.7	16.2
Traineeship		.9	.7	.7	.7	.7	1.5	.0	1.5	1.1	3.1	1.5	1.8	.7	.5	1.4
Other		1.6	.7	1.2	.0	.8	1.9	.0	.3	.7	6.0	7.7	7.4	1.3	.5	5.0
Planned Employment After Doctorate	%	72.7	47.1	51.3	64.1	52.3	70.6	86.7	77.8	65.8	15.7	33.5	30.3	78.7	77.5	46.7
Educ Institution		40.7	14.6	8.6	24.4	13.4	54.3	43.4	28.5	24.5	5.1	17.1	14.9	36.9	40.8	23.6
Industry/Business		16.4	23.1	37.3	21.7	29.8	11.1	35.7	37.5	31.5	8.2	7.6	7.7	19.9	15.9	10.9
Government		8.3	7.2	2.8	14.1	6.3	3.2	5.2	8.6	6.9	1.5	5.3	4.6	13.6	14.3	7.9
Nonprofit		4.3	.7	1.0	1.3	.9	.7	.8	1.3	1.1	.4	1.8	1.5	5.0	2.1	1.9
Other & Unknown		3.0	1.4	1.6	2.6	1.8	1.4	1.6	2.0	1.8	.4	1.7	1.5	3.3	4.4	2.4
Postdoct Status Unknown	%	6.5	5.1	5.7	4.1	5.2	8.5	6.0	8.3	6.8	4.4	4.7	4.6	7.3	6.4	5.3
Definite Postdoctoral Study		15.3	36.2	32.6	22.6	31.9	14.6	4.4	8.0	19.4	69.5	49.1	52.8	10.6	9.1	37.8
Seeking Postdoctoral Study		5.6	11.7	10.5	9.3	10.6	6.3	2.8	5.9	8.0	10.4	12.7	12.3	3.3	7.1	10.2
Definite Employment		53.9	32.5	40.8	51.1	40.0	54.1	68.3	58.3	49.9	11.3	22.4	20.4	62.1	55.5	33.1
Seeking Employment		18.7	14.6	10.5	13.0	12.3	16.5	18.5	19.5	15.9	4.4	11.1	9.9	16.6	21.9	13.6
Employment Activity After Doctorate																
Primary Activity																
R & D	%	31.0	72.1	78.2	54.3	71.0	36.5	62.9	61.2	62.5	60.8	51.4	52.4	41.2	54.9	51.8
Teaching		36.1	20.3	12.7	21.0	16.7	53.5	23.5	24.4	24.4	21.6	25.1	24.7	25.7	20.8	23.1
Administration		12.5	1.0	1.7	3.3	1.9	.6	2.9	2.0	1.9	5.9	3.7	3.9	10.7	2.6	4.4
Prof. Services		11.9	1.3	2.2	9.4	3.6	2.2	2.4	5.4	4.2	5.9	12.9	12.2	15.0	7.1	10.3
Other		3.1	2.5	1.0	6.9	2.8	1.6	2.4	2.5	2.5	2.0	2.6	2.5	2.1	6.3	4.2
Activity Unknown		5.4	2.9	4.2	5.1	4.0	5.7	5.9	4.5	4.5	3.9	4.4	4.3	5.3	8.3	6.3
Secondary Activity																
R & D		25.5	15.2	10.7	21.0	14.3	44.0	22.4	22.5	21.6	13.7	24.8	23.7	28.9	20.6	23.1
Teaching		12.8	7.9	3.2	10.9	6.2	22.3	28.2	13.9	12.7	7.8	16.8	15.9	14.4	19.6	17.3
Administration		9.6	8.3	14.9	10.9	12.2	1.9	7.6	8.5	9.2	21.6	12.0	12.9	12.3	9.3	11.2
Prof. Services		7.0	3.5	5.9	7.2	5.6	3.5	4.7	5.2	5.1	3.9	6.3	6.1	9.1	6.7	6.8
Other		1.9	.6	.8	.7	.8	.6	.6	1.0	.9	.0	1.1	1.0	.0	1.4	1.0
No Secondary Activity		37.8	61.6	60.3	44.2	56.9	22.0	30.6	44.3	46.0	49.0	34.6	36.1	29.9	34.0	34.3
Unknown		5.4	2.9	4.2	5.1	4.0	5.7	5.9	4.5	4.5	3.9	4.4	4.3	5.3	8.3	6.3
Region of Employment After Doctorate																
New England	%	5.7	7.6	5.4	4.0	5.6	7.2	4.7	5.1	5.5	5.9	5.4	5.5	3.7	4.3	5.8
Middle Atlantic		14.0	17.8	21.6	6.2	17.0	10.7	21.8	13.8	15.1	19.6	12.0	12.7	11.8	3.9	8.6
East No Central		13.2	7.9	19.9	6.9	13.7	15.4	12.4	11.6	12.8	15.7	11.3	11.8	17.6	8.8	11.3
West No Central		6.4	2.2	6.9	5.1	5.2	7.2	2.4	3.5	4.4	11.8	7.8	8.2	8.0	10.4	9.2
South Atlantic		14.3	14.0	14.4	13.0	14.0	12.9	7.6	11.1	12.2	13.7	17.6	17.3	17.1	12.2	15.0
East So Central		4.2	5.1	1.7	4.3	3.2	4.7	1.8	2.8	3.1	3.9	2.4	2.5	3.2	4.4	3.5
West So Central		8.1	5.7	8.0	18.1	9.8	6.9	11.2	7.7	8.6	2.0	8.1	7.5	5.3	7.4	7.1
Mountain		4.6	5.7	3.2	10.9	5.6	4.1	4.1	4.7	5.0	2.0	3.9	3.7	3.2	5.6	4.5
Pacific & Insular		11.0	18.4	9.9	13.0	12.9	13.2	20.6	15.4	14.5	9.8	10.7	10.6	10.7	8.3	9.6
Foreign		12.6	13.7	5.2	15.2	9.8	11.6	9.4	18.9	14.3	13.7	15.5	15.3	15.0	34.0	23.7
Region Unknown		6.0	1.9	3.9	3.3	3.2	6.0	4.1	5.4	4.6	2.0	5.2	4.9	4.3	2.6	3.8

1/Refer to explanatory note on page 22 and the description of doctoral fields inside back cover.

TABLE 2. (Continued)

Doctorates: Men

Psychology	Economics	Anthropology and Sociology	Political Sci. and International Rel.	Other Social Sciences	Social Sciences Incl. Psychology	Total Sciences	History	Eng. and Amer. Lang. and Lit.	Foreign Lang. and Lit.	Other Humanities	Humanities	Business and Management	Other Professional Fields	Education	Total Non-Sciences	Other or Unspecified 2/
1735	680	507	376	377	3675	13961	417	338	218	991	1964	631	593	3543	6731	13
52.5	83.6	56.5	79.3	67.0	60.7	74.3	67.7	47.3	43.3	59.7	56.2	83.6	60.9	49.6	54.4	59.1
90.5	60.4	79.5	72.6	63.7	78.9	68.8	86.3	87.3	71.1	85.2	84.2	66.7	79.3	82.8	81.4	
4.4	34.7	17.0	22.3	30.0	16.2	27.3	9.6	10.1	20.2	10.4	11.3	30.4	14.5	14.1	14.9	
5.1	4.9	3.6	5.1	6.4	5.0	3.9	4.1	2.7	8.7	4.4	4.5	2.9	6.2	3.1	3.8	
56.0	60.4	62.3	59.3	62.6	58.7	58.4	60.0	54.1	56.0	57.1	57.1	71.9	66.4	78.3	70.5	
37.3	33.2	33.5	32.2	30.0	34.7	36.2	34.5	41.1	35.3	36.3	36.7	23.8	25.1	17.3	24.2	
6.7	6.3	4.1	8.5	7.4	6.6	5.5	5.5	4.7	8.7	6.6	6.3	4.3	8.4	4.4	5.3	
31.8	31.4	34.2	33.5	33.5	32.3	30.7	34.2	32.6	34.0	33.5	33.7	34.6	36.1	37.4	35.9	
68.4	64.1	54.6	57.2	26.3	60.2	65.3	64.0	64.8	53.2	54.7	58.2	41.8	19.6	35.6	41.4	
79.7	77.2	87.4	85.6	90.5	82.0	72.2	89.7	86.1	85.3	86.6	87.0	90.2	92.1	95.8	92.4	
8.8	8.5	10.7	9.9	10.1	9.2	8.0	11.3	10.0	11.0	10.7	10.7	11.3	12.8	13.8	12.5	
6.6	6.2	8.0	7.3	6.7	6.8	6.1	8.5	7.4	8.1	7.5	7.8	6.7	7.5	7.4	7.5	
17.7	3.8	13.6	4.8	7.4	12.2	29.1	6.5	5.0	7.8	4.8	5.5	2.1	3.9	3.2	3.9	
10.5	1.5	7.1	2.7	2.9	6.8	13.4	3.8	2.7	6.4	2.8	3.4	.5	1.9	1.1	1.8	
3.2	1.0	3.6	1.6	2.9	2.7	12.4	1.2	.6	1.4	.9	1.0	1.0	.8	1.2	1.1	
2.7	.6	1.0	.3	1.1	1.6	1.3	.0	.0	.0	.0	.0	.3	.2	.3	.2	
1.3	.7	2.0	.3	.5	1.1	2.0	1.4	1.8	.0	1.1	1.2	.3	1.0	.7	.8	
75.3	89.1	79.9	85.1	84.4	80.4	64.4	85.4	89.6	79.4	87.3	86.4	92.6	87.5	91.7	89.9	
25.1	63.2	53.1	56.9	51.7	42.0	28.9	56.1	77.8	65.1	68.2	67.0	74.3	50.1	65.5	65.4	
15.9	9.4	8.3	7.4	10.6	12.2	20.8	6.5	5.6	4.1	7.1	6.4	12.5	7.1	6.9	7.3	
14.0	10.9	8.1	13.0	14.1	12.5	8.7	8.6	1.2	4.1	1.6	3.3	3.3	9.9	10.3	7.6	
14.5	2.8	5.9	3.2	3.7	8.9	3.4	5.5	1.8	3.2	6.4	5.0	1.4	18.5	5.5	6.1	
5.8	2.8	4.5	4.5	4.2	4.8	2.8	8.6	3.3	2.8	4.0	4.7	1.0	1.9	3.5	3.5	
7.0	7.1	6.5	10.1	8.2	7.4	6.5	8.2	5.3	12.8	7.9	8.0	5.4	8.6	5.1	6.3	
13.3	2.5	6.9	2.1	4.5	8.4	21.6	3.8	2.1	6.4	2.2	3.0	1.9	2.9	1.8	2.3	
4.4	1.3	6.7	2.7	2.9	3.8	7.5	2.6	3.0	1.4	2.6	2.5	.2	1.0	1.4	1.6	
52.6	74.9	50.5	58.5	55.4	57.3	47.2	50.6	58.6	55.0	59.8	57.1	82.7	72.3	70.4	67.9	
22.8	14.3	29.4	26.6	28.9	23.1	17.2	34.8	31.1	24.3	27.4	29.3	9.8	15.2	21.3	22.0	
16.1	32.8	23.8	14.5	21.5	21.5	47.3	12.3	4.0	7.5	5.6	6.8	19.2	8.4	5.2	7.5	
18.3	53.2	47.7	57.7	51.2	37.7	28.4	56.4	78.3	69.2	72.8	70.3	64.0	47.8	33.3	47.2	
4.6	2.6	10.9	11.8	8.1	6.0	3.7	11.8	7.1	5.0	4.4	6.3	6.9	14.0	39.5	25.2	
55.7	4.3	7.0	5.5	11.5	27.7	12.9	7.1	3.0	6.7	6.7	6.1	3.6	16.3	12.8	10.5	
1.4	2.9	4.3	5.0	3.8	2.8	2.9	7.1	3.5	5.0	6.1	5.7	2.1	6.1	2.3	3.5	
3.8	4.1	6.3	5.5	3.8	4.4	4.8	5.2	4.0	6.7	4.4	4.7	4.2	7.5	7.0	6.2	
23.4	46.4	37.9	43.6	39.2	34.4	26.0	31.8	41.4	42.5	29.7	33.5	51.5	23.5	15.7	24.9	
15.2	16.3	12.5	7.7	12.4	14.1	14.0	8.5	6.1	7.5	8.1	7.8	15.1	12.1	11.7	11.2	
14.1	6.1	8.2	7.7	6.7	10.1	9.9	7.1	5.6	5.0	11.0	8.6	4.4	13.8	9.6	9.2	
7.8	3.1	3.5	2.3	6.2	5.4	5.6	2.8	4.5	3.3	5.4	4.5	3.8	9.8	11.9	9.0	
2.2	1.8	1.2	.9	1.9	1.8	1.2	2.8	4.5	3.3	6.9	5.3	1.1	3.5	2.2	3.0	
33.4	22.2	30.5	32.3	29.7	29.9	38.6	41.7	33.8	31.7	34.6	35.5	19.7	29.8	41.9	36.7	
3.8	4.1	6.3	5.5	3.8	4.4	4.8	5.2	4.0	6.7	4.4	4.7	4.2	7.5	7.0	6.2	
8.2	8.4	6.3	7.3	6.2	7.7	5.9	8.1	6.6	9.2	7.8	7.8	5.9	2.6	4.8	5.5	
20.2	15.9	13.3	13.2	12.0	16.8	14.4	11.4	15.7	16.7	13.5	13.8	12.6	13.3	13.4	13.4	
14.7	12.2	12.5	11.4	9.1	12.9	12.5	10.0	16.2	15.0	12.8	13.1	16.1	13.1	14.5	14.2	
6.1	5.5	3.1	1.8	3.8	4.9	5.5	3.8	6.6	5.8	8.4	7.0	5.4	7.7	8.3	7.6	
12.8	19.1	16.8	23.6	17.2	16.4	14.0	21.8	11.1	14.2	15.0	15.5	14.0	14.2	14.4	14.6	
4.9	2.8	2.7	2.7	2.9	3.7	3.4	5.2	4.0	6.7	5.6	5.3	5.6	8.4	4.7	5.3	
7.9	4.7	7.0	5.5	7.7	6.7	7.7	10.9	12.6	4.2	7.6	8.7	10.2	11.7	8.0	8.8	
3.7	2.8	7.0	5.0	4.8	4.1	4.6	2.4	3.0	3.3	3.4	3.1	5.6	1.9	5.5	4.6	
12.2	8.1	11.3	9.5	11.5	10.7	12.4	9.0	11.1	12.5	9.8	10.2	9.8	10.3	8.2	9.1	
1.8	15.9	14.8	14.5	20.6	10.0	14.7	8.5	7.6	6.7	9.3	8.6	11.5	11.0	9.2	9.5	
7.5	4.7	5.1	5.5	4.3	6.0	4.9	9.0	5.6	5.8	6.9	7.0	3.4	6.1	9.0	7.6	

2/Statistics are not presented for this group because too few records contained the specified data.

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

TABLE 2: Statistical Profile of Doctorate Recipients by Field of Doctorate, 1983[1/]

Doctorates: Women

		1983 Total	Physics and Astronomy	Chemistry	Earth, Atmospheric and Marine Sciences	Physical Sciences	Mathematics	Computer Sciences	Engineering	EMP Fields	Biochemistry	Other Biosciences	Biosciences	Health Sciences	Agricultural Sciences	Life Sciences
Total Female		10485	74	297	97	468	113	36	124	741	194	1037	1231	335	151	1717
Female as a Percent of Total Doctorates	%	33.6	7.1	16.9	15.2	13.6	16.1	12.6	4.5	10.3	30.0	33.6	33.0	52.7	12.9	31.0
U.S. Citizenship	%	87.8	68.9	78.8	83.5	78.2	67.3	75.0	66.9	74.5	79.9	88.1	86.8	85.4	74.2	85.4
Foreign Citizenship		9.0	31.1	19.2	14.4	20.1	30.1	25.0	27.4	23.1	16.5	9.8	10.9	11.6	23.8	12.2
Unknown		3.2	.0	2.0	2.1	1.7	2.7	.0	5.6	2.4	3.6	2.0	2.3	3.0	2.0	2.4
Married	%	52.8	44.6	49.2	52.6	49.1	47.8	69.4	55.6	51.0	56.2	48.6	49.8	55.5	47.0	50.7
Not Married		42.6	54.1	47.8	39.2	47.0	49.6	30.6	37.1	44.9	39.7	48.4	47.0	39.4	49.0	45.7
Unknown		4.6	1.4	3.0	8.2	3.8	2.7	.0	7.3	4.0	4.1	3.0	3.2	5.1	4.0	3.6
Median Age at Doctorate		34.4	29.3	28.7	30.0	29.1	29.6	32.3	30.0	29.4	29.2	30.2	30.0	35.4	31.7	30.9
Percent with Bacc in Same Field as Doctorate		51.9	82.4	84.2	40.2	74.8	85.8	13.9	42.7	68.2	22.7	66.1	59.2	57.3	37.1	56.9
Percent with Masters		83.9	75.7	40.1	61.9	50.2	79.6	88.9	83.1	62.1	32.0	50.4	47.5	91.0	88.1	59.6
Median Time Lapse From Bacc to Doct																
Total Time	Yrs	11.2	7.3	6.3	8.0	6.9	7.5	10.0	7.7	7.2	6.8	7.7	7.5	12.4	8.8	8.3
Registered Time		7.0	6.6	5.3	6.4	5.8	6.4	6.7	5.7	5.9	5.8	6.1	6.1	6.7	6.1	6.2
Postdoctoral Study Plans	%	16.2	50.0	40.4	28.9	39.5	12.4	5.6	21.8	30.8	81.4	65.6	68.1	9.6	19.2	52.4
Fellowship		8.4	13.5	17.8	10.3	15.6	5.3	2.8	6.5	11.9	44.8	37.7	38.8	5.7	6.6	29.5
Research Assoc		5.2	36.5	21.2	16.5	22.6	6.2	2.8	12.1	17.4	29.4	21.2	22.5	2.7	11.9	17.7
Traineeship		1.1	.0	.7	.0	.4	.0	.0	.0	.3	3.1	1.8	2.0	.3	.7	1.6
Other		1.6	.0	.7	2.1	.9	.9	.0	3.2	1.2	4.1	4.8	4.7	.9	.0	3.6
Planned Employment After Doctorate	%	77.7	48.6	54.5	60.8	54.9	81.4	94.4	71.0	63.6	12.9	30.0	27.3	83.6	72.8	42.3
Educ Institution		50.0	24.3	12.5	29.9	17.9	60.2	55.6	25.0	27.4	2.6	15.8	13.7	53.4	32.5	23.1
Industry/Business		9.9	21.6	34.3	17.5	28.8	9.7	30.6	33.9	26.9	5.2	5.9	5.8	6.6	16.6	6.9
Government		5.9	1.4	5.1	8.2	5.1	6.2	2.8	7.3	5.5	1.0	3.8	3.3	7.5	15.2	5.2
Nonprofit		6.1	.0	.7	4.1	1.3	.9	.0	4.0	1.6	.5	1.1	1.0	9.6	1.3	2.7
Other & Unknown		5.7	1.4	2.0	1.0	1.7	4.4	5.6	.8	2.2	3.6	3.5	3.5	6.6	7.3	4.4
Postdoct Status Unknown	%	6.1	1.4	5.1	10.3	5.6	6.2	.0	7.3	5.7	5.7	4.4	4.6	6.9	7.9	5.4
Definite Postdoctoral Study		11.5	40.5	29.3	18.6	28.8	8.8	2.8	13.7	22.0	68.6	51.5	54.2	6.3	11.9	41.1
Seeking Postdoctoral Study		4.7	9.5	11.1	10.3	10.7	3.5	2.8	8.1	8.8	12.9	14.1	13.9	3.3	7.3	11.2
Definite Employment		52.8	27.0	37.7	49.5	38.5	59.3	58.3	52.4	44.9	6.7	17.9	16.2	82.4	51.0	28.2
Seeking Employment		24.9	21.6	16.8	11.3	15.5	22.1	36.1	18.5	18.6	6.2	12.1	11.1	21.2	21.9	14.0
Employment Activity After Doctorate																
Primary Activity																
R & D	%	14.2	45.0	73.2	52.1	64.4	40.3	52.4	63.1	58.6	61.5	40.3	41.7	24.4	57.1	36.7
Teaching		45.5	55.0	16.1	29.2	23.9	56.7	38.1	26.2	31.8	23.1	40.3	39.2	45.9	24.7	39.8
Administration		15.9	.0	.9	6.3	2.2	.0	.0	.0	1.2	15.4	2.7	3.5	14.4	3.9	8.2
Prof. Services		17.2	.0	1.8	2.1	1.7	.0	4.8	3.1	1.8	.0	10.8	10.1	10.5	6.5	9.7
Other		2.8	.0	.0	6.3	1.7	.0	4.8	3.1	1.8	.0	2.2	2.0	1.4	3.9	2.1
Activity Unknown		4.5	.0	3.0	4.2	6.1	3.0	.0	4.6	4.8	.0	3.8	3.5	3.3	3.9	3.5
Secondary Activity																
R & D		27.4	50.0	11.6	27.1	20.0	50.7	42.9	26.2	28.8	7.7	31.7	30.2	36.4	22.1	31.5
Teaching		11.8	15.0	3.6	20.8	9.4	20.9	33.3	10.8	13.5	7.7	15.1	14.6	16.7	16.9	15.9
Administration		8.7	.0	12.5	8.3	10.0	3.0	4.8	.0	6.3	7.7	10.8	10.6	11.5	5.2	10.1
Prof. Services		9.4	5.0	7.1	4.2	6.1	1.5	.0	6.2	4.8	7.7	5.4	5.5	9.1	2.6	6.6
Other		2.4	.0	.0	2.1	.6	.0	.0	1.5	.6	.0	.0	.0	.5	1.3	.4
No Secondary Activity		35.9	30.0	57.1	33.3	47.8	20.9	19.0	50.8	41.1	69.2	33.3	35.7	22.5	48.1	32.0
Unknown		4.5	.0	8.0	4.2	6.1	3.0	.0	4.6	4.8	.0	3.8	3.5	3.3	3.9	3.5
Region of Employment After Doctorate																
New England	%	6.8	10.0	6.3	2.1	5.6	11.9	14.3	9.2	8.1	.0	6.5	6.0	6.2	3.9	5.8
Middle Atlantic		15.2	20.0	27.7	4.2	20.6	19.4	19.0	23.1	20.7	23.1	11.8	12.6	18.2	3.9	13.6
East No Central		13.5	.0	17.0	10.4	13.3	9.0	14.3	10.8	12.0	15.4	18.3	18.1	14.8	10.4	15.5
West No Central		6.0	15.0	3.6	2.1	4.4	10.4	4.8	4.6	5.7	7.7	4.8	5.0	4.3	14.3	6.2
South Atlantic		15.9	15.0	10.7	14.6	12.2	10.4	14.3	7.7	11.1	23.1	22.6	22.6	14.4	18.2	18.4
East So Central		4.5	.0	.9	.0	.6	1.5	9.5	3.1	1.8	7.7	2.2	2.5	4.3	2.6	3.3
West So Central		8.8	5.0	7.1	22.9	11.1	9.0	4.8	7.7	9.6	7.7	7.0	7.0	10.5	2.6	7.8
Mountain		4.2	5.0	2.7	4.2	3.3	4.5	4.8	4.6	3.9	7.7	2.7	3.0	8.1	3.9	5.4
Pacific & Insular		11.1	10.0	12.5	18.8	13.9	17.9	4.8	16.9	14.7	.0	11.3	10.6	9.1	10.4	9.9
Foreign		4.7	15.0	7.1	10.4	8.9	6.0	4.8	10.8	8.4	.0	7.5	7.0	6.7	23.4	9.5
Region Unknown		9.4	5.0	4.5	10.4	6.1	.0	4.8	1.5	3.9	7.7	5.4	5.5	3.3	6.5	4.7

1/Refer to explanatory note on page 22 and the description of doctoral fields inside back cover.

TABLE 2. (Continued)

Doctorates: Women

Psychology	Economics	Anthropology and Sociology	Political Sci. and International Rel.	Other Social Sciences	Social Sciences Incl. Psychology	Total Sciences	History	Eng. and Amer. Lang. and Lit.	Foreign Lang. and Lit.	Other Humanities	Humanities	Business and Management	Other Professional Fields	Education	Total Non-Sciences	Other or Unspecified 2/
1572	133	391	98	186	2380	4838	199	376	286	669	1530	124	380	3604	5638	9
47.5	16.4	43.5	20.7	33.0	39.3	25.7	32.3	52.7	56.7	40.3	43.8	16.4	39.1	50.4	45.6	40.9
92.4	68.4	87.5	90.8	80.1	89.2	85.6	91.5	89.9	76.6	87.7	86.7	83.1	88.2	91.3	89.6	
4.1	27.8	7.2	6.1	15.1	6.9	11.2	7.0	6.9	18.9	9.0	10.1	12.9	8.2	5.5	7.1	
3.5	3.8	5.4	3.1	4.8	3.9	3.1	1.5	3.2	4.5	3.3	3.3	4.0	3.7	3.2	3.2	
49.0	55.6	48.3	52.0	52.2	49.6	50.2	56.3	53.7	52.1	46.6	50.7	62.1	51.6	57.0	55.0	
45.9	40.6	46.3	43.9	39.2	45.1	45.3	40.7	41.5	43.4	48.3	44.7	32.3	41.8	38.6	40.4	
5.1	3.8	5.4	4.1	8.6	5.3	4.5	3.0	4.8	4.5	5.1	4.6	5.6	6.6	4.4	4.6	
32.3	30.8	34.3	31.9	34.7	32.7	31.4	35.1	34.3	34.6	34.3	34.4	33.3	36.2	38.3	36.9	
62.2	58.6	55.8	51.0	17.2	57.0	58.7	56.8	68.9	62.6	51.7	58.6	39.5	25.5	43.2	46.1	
81.2	72.9	86.4	82.7	89.8	82.4	71.2	91.5	89.9	94.1	89.2	90.6	87.9	95.8	96.7	94.8	
9.2	8.4	10.6	9.9	11.7	9.5	8.7	11.5	11.7	11.5	11.4	11.5	10.6	12.6	14.5	13.4	
6.6	6.8	7.9	7.8	7.4	7.0	6.4	8.3	8.1	8.3	7.9	8.1	6.9	6.7	7.3	7.5	
17.6	3.0	12.8	9.2	7.0	14.8	30.6	10.6	2.9	3.5	6.7	5.7	2.4	2.1	3.4	3.9	
9.9	2.3	6.9	6.1	1.6	8.2	16.3	5.0	1.3	3.1	4.0	3.3	.8	1.1	1.0	1.6	
2.7	.8	4.3	2.0	3.2	2.9	10.4	2.0	.5	.0	.7	.7	.8	.5	.7	.7	
3.4	.0	.3	.0	.5	2.3	1.7	.0	.0	.0	.3	.1	.8	.3	.6	.5	
1.7	.0	1.3	1.0	1.6	1.5	2.2	3.5	1.1	.3	1.6	1.5	.0	.3	1.0	1.0	
76.3	90.2	79.0	84.7	83.3	78.4	63.3	83.9	90.4	89.2	84.2	86.6	92.7	90.8	91.3	90.0	
28.2	56.4	53.5	62.2	46.8	36.8	30.5	61.3	76.9	73.4	64.7	68.9	83.1	61.3	65.8	66.7	
14.8	16.5	7.7	7.1	12.4	13.2	13.0	7.5	5.9	7.0	6.9	6.7	3.2	11.3	7.2	7.3	
9.2	9.0	2.8	5.1	8.1	7.9	6.6	1.5	.8	1.0	1.5	1.2	3.2	6.1	7.2	5.4	
16.5	3.8	6.6	2.0	7.0	12.9	7.5	6.0	1.3	1.0	5.4	3.7	2.4	7.9	5.3	5.0	
7.6	4.5	8.4	8.2	9.1	7.7	5.7	7.5	5.6	6.6	5.7	6.1	.8	4.2	5.9	5.7	
6.1	6.8	8.2	6.1	9.7	6.8	6.1	5.5	6.6	7.3	9.1	7.7	4.8	7.1	5.4	6.1	
11.9	1.5	6.6	4.1	2.7	9.4	22.6	5.0	1.1	1.0	2.7	2.3	1.6	1.3	1.8	1.9	
5.7	1.5	6.1	5.1	4.3	5.4	8.0	5.5	1.9	2.4	4.0	3.4	.8	.8	1.6	2.0	
48.7	72.2	47.6	57.1	51.6	50.4	41.7	51.8	58.2	55.9	53.8	55.0	81.5	65.8	64.4	62.3	
27.6	18.0	31.5	27.6	31.7	28.0	21.6	32.2	32.2	33.2	30.3	31.6	11.3	25.0	26.9	27.7	
12.5	36.5	22.0	25.0	19.8	17.1	28.6	12.6	2.7	2.5	6.7	5.6	16.8	7.2	5.3	5.8	
17.5	52.1	56.5	66.1	46.9	30.9	33.2	66.0	81.7	80.0	75.6	76.8	74.3	57.2	42.4	52.6	
5.2	3.1	5.4	3.6	8.3	5.3	5.3	5.8	5.9	6.9	6.9	6.5	7.9	10.0	29.3	21.9	
59.7	4.2	5.9	3.6	15.6	40.8	26.9	4.9	2.7	1.3	4.7	3.6	.0	16.0	14.6	11.7	
1.7	3.1	4.3	.0	4.2	2.3	2.2	9.7	3.7	3.8	2.5	3.9	1.0	2.4	3.1	3.2	
3.4	1.0	5.9	1.8	5.2	3.7	3.8	1.0	3.2	5.6	3.6	3.6	.0	7.2	5.3	4.8	
24.2	45.8	37.1	48.2	33.3	29.8	30.0	35.0	32.9	51.9	38.6	39.2	61.4	39.2	18.3	26.0	
16.1	11.5	11.3	12.5	15.6	14.8	14.8	9.7	4.6	3.8	6.7	5.9	15.8	12.8	10.9	10.0	
8.5	5.2	8.1	8.9	8.3	8.2	8.3	3.9	9.1	1.9	8.3	6.8	5.0	7.2	10.0	8.9	
7.2	4.2	6.5	3.6	6.3	6.6	6.3	4.9	2.7	3.8	6.4	4.8	5.0	9.6	13.9	11.1	
3.1	1.0	1.6	.0	4.2	2.7	1.8	3.9	2.3	.6	6.1	3.8	2.0	2.8	2.3	2.7	
37.6	31.3	29.6	25.0	27.1	34.4	34.9	41.7	45.2	32.5	30.3	36.0	10.9	21.2	39.4	36.5	
3.4	1.0	5.9	1.8	5.2	3.7	3.8	1.0	3.2	5.6	3.6	3.6	.0	7.2	5.3	4.8	
8.9	16.7	3.8	7.1	8.3	8.6	7.8	12.6	6.4	14.4	8.3	9.5	7.9	5.6	5.0	6.2	
22.1	25.0	18.3	12.5	16.7	20.8	19.1	9.7	12.8	16.9	14.2	13.8	11.9	11.2	13.0	13.0	
12.5	9.4	12.9	10.7	8.3	11.9	12.8	14.6	16.9	14.4	10.3	13.3	9.9	18.4	13.8	13.9	
4.0	4.2	6.5	7.1	6.3	4.8	5.3	2.9	5.0	6.9	8.6	6.7	5.0	6.8	6.4	6.4	
13.1	21.9	17.2	26.8	15.6	15.3	15.3	13.6	16.0	8.1	13.1	12.9	23.8	13.6	17.3	16.2	
3.3	1.0	5.9	.0	2.1	3.3	3.0	2.9	5.5	3.8	2.8	3.7	5.0	7.2	5.8	5.3	
7.8	4.2	5.9	3.6	3.1	6.7	7.4	10.7	10.5	6.3	7.8	8.6	11.9	10.4	9.8	9.6	
4.2	1.0	5.4	5.4	5.2	4.3	4.5	4.9	2.7	2.5	3.9	3.4	5.0	6.0	4.1	4.1	
13.3	4.2	7.5	16.1	14.6	11.9	11.9	11.7	8.7	14.4	14.2	12.5	12.9	8.4	10.1	10.6	
1.8	8.3	8.1	.0	9.4	3.8	5.9	4.9	5.9	3.8	6.9	5.8	4.0	4.0	3.2	3.9	
9.0	4.2	8.6	10.7	10.4	8.8	7.0	11.7	9.6	8.8	10.0	9.9	3.0	8.4	11.7	10.8	

2/Statistics are not presented for this group because too few records contained the specified data.

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

TABLE 3 Sources of Support in Graduate School of Doctorate Recipients by Sex and Summary Field, 1983

Sources of Support in Graduate School		Total	Field of Doctorate: Physical Sciences[1]	Engineering	Life Sciences	Social Sciences	Humanities	Prof. Fields	Education
		Men/Women	Men/Women	Men/Women	Men/Women	Men/Women	Men/Women	Men/Women	Men/Women
NSF Fellowship	N	516/ 183	219/ 27	97/ 9	94/ 64	74/ 61	10/ 10	8/ 0	14/ 12
	V%[2]	2.6/ 1.8	6.1/ 4.5	3.9/ 7.7	2.6/ 3.9	2.2/ 2.7	.5/ .7	.7/ .0	.4/ .4
	H%[2]	100.0/100.0	42.4/ 14.8	18.8/ 4.9	18.2/ 35.0	14.3/ 33.3	1.9/ 5.5	1.6/ .0	2.7/ 6.6
NSF Traineeship	N	90/ 48	25/ 10	15/ 0	32/ 17	17/ 16	0/ 2	0/ 0	1/ .3
	V%	.5/ .5	.7/ 1.7	.6/ .0	.9/ 1.0	.5/ .7	.0/ .1	.0/ .0	.0/ .1
	H%	100.0/100.0	27.8/ 20.8	16.7/ .0	35.6/ 35.4	18.9/ 33.3	.0/ 4.2	.0/ .0	1.1/ 6.3
NIH Fellowship	N	246/ 196	29/ 7	4/ 0	129/ 83	77/ 86	1/ 1	3/ 10	3/ .9
	V%	1.3/ 2.0	.8/ 1.2	.2/ .0	3.5/ 5.0	2.3/ 3.9	.1/ .1	.3/ 2.1	.1/ .3
	H%	100.0/100.0	11.8/ 3.6	1.6/ .0	52.4/ 42.3	31.3/ 43.9	.4/ .5	1.2/ 5.1	1.2/ 4.6
NIH Traineeship	N	854/ 535	43/ 12	26/ 2	597/ 347	170/ 157	2/ 1	8/ 6	8/ 10
	V%	4.4/ 5.4	1.2/ 2.0	1.0/ 1.7	16.4/ 21.1	5.0/ 7.0	.1/ .1	.7/ 1.3	.2/ .3
	H%	100.0/100.0	5.0/ 2.2	3.0/ .4	69.9/ 64.9	19.9/ 29.3	.2/ .2	.9/ 1.1	.9/ 1.9
NDEA Fellowship	N	152/ 110	9/ 2	0/ 0	4/ 1	42/ 22	77/ 68	1/ 0	19/ 17
	V%	.8/ 1.1	.2/ .3	.0/ .0	.1/ .1	1.2/ 1.0	4.2/ 4.7	.1/ .0	.6/ .5
	H%	100.0/100.0	5.9/ 1.8	.0/ .0	2.6/ .9	27.6/ 20.0	50.7/ 61.8	.7/ .0	12.5/ 15.5
Graduate & Prof. Opportunities Program	N	48/ 58	6/ 9	3/ 3	12/ 14	11/ 15	2/ 3	3/ 1	11/ 13
	V%	.2/ .6	.2/ 1.5	.1/ 2.6	.3/ .9	.3/ .7	.1/ .2	.3/ .2	.3/ .4
	H%	100.0/100.0	12.5/ 15.5	6.3/ 5.2	25.0/ 24.1	22.9/ 25.9	4.2/ 5.2	6.3/ 1.7	22.9/ 22.4
National Direct Student Loans	N	2524/ 1700	253/ 39	124/ 3	394/ 200	761/ 574	367/ 287	150/ 90	474/ 506
	V%	13.0/ 17.1	7.0/ 6.6	5.0/ 2.6	10.8/ 12.2	22.3/ 25.8	20.1/ 20.0	13.2/ 19.1	14.2/ 14.8
	H%	100.0/100.0	10.0/ 2.3	4.9/ .2	15.6/ 11.8	30.2/ 33.8	14.5/ 16.9	5.9/ 5.3	18.8/ 29.8
Other HEW	N	380/ 345	27/ 2	18/ 1	80/ 81	174/ 145	10/ 14	31/ 19	39/ 83
	V%	2.0/ 3.5	.7/ .3	.7/ .9	2.2/ 4.9	5.1/ 6.5	.5/ 1.0	2.7/ 4.0	1.2/ 2.4
	H%	100.0/100.0	7.1/ .6	4.7/ .3	21.1/ 23.5	45.8/ 42.0	2.6/ 4.1	8.2/ 5.5	10.3/ 24.1
GI Bill	N	1222/ 55	101/ 2	81/ 1	140/ 8	271/ 17	138/ 3	130/ 2	359/ 22
	V%	6.3/ .6	2.8/ .3	3.3/ .9	3.8/ .5	8.0/ .8	7.5/ .2	11.5/ .4	10.7/ .6
	H%	100.0/100.0	8.3/ 3.6	6.6/ 1.8	11.5/ 14.5	22.2/ 30.9	11.3/ 5.5	10.6/ 3.6	29.4/ 40.0
Other Federal[3] Support	N	1159/ 445	225/ 31	192/ 12	260/ 85	250/ 136	89/ 61	45/ 13	98/ 107
	V%	6.0/ 4.5	6.2/ 5.2	7.7/ 10.3	7.1/ 5.2	7.3/ 6.1	4.9/ 4.2	4.0/ 2.8	2.9/ 3.1
	H%	100.0/100.0	19.4/ 7.0	16.6/ 2.7	22.4/ 19.1	21.6/ 30.6	7.7/ 13.7	3.9/ 2.9	8.5/ 24.0
Other National[4] Fellowship	N	540/ 418	87/ 19	55/ 7	104/ 55	125/ 119	101/ 140	25/ 20	42/ 58
	V%	2.8/ 4.2	2.4/ 3.2	2.2/ 6.0	2.9/ 3.3	3.7/ 5.3	5.5/ 9.7	2.2/ 4.3	1.3/ 1.7
	H%	100.0/100.0	16.1/ 4.5	10.2/ 1.7	19.3/ 13.2	23.1/ 28.5	18.7/ 33.5	4.6/ 4.8	7.8/ 13.9
University Fellowship	N	3791/ 2030	748/ 148	379/ 23	646/ 355	810/ 535	715/ 531	212/ 99	279/ 336
	V%	19.5/ 20.5	20.7/ 24.9	15.2/ 19.7	17.7/ 21.6	23.8/ 24.0	39.1/ 37.0	18.7/ 21.1	8.3/ 9.8
	H%	100.0/100.0	19.7/ 7.3	10.0/ 1.1	17.0/ 17.5	21.4/ 26.4	18.9/ 26.2	5.6/ 4.9	7.4/ 16.6
Teaching Assistantship	N	9453/ 4274	2546/ 451	1050/ 46	1504/ 664	1843/ 1103	1229/ 986	536/ 217	744/ 804
	V%	48.5/ 43.1	70.4/ 75.9	42.2/ 39.3	41.3/ 40.4	54.1/ 49.5	67.2/ 68.6	47.3/ 46.2	22.2/ 23.5
	H%	100.0/100.0	26.9/ 10.6	11.1/ 1.1	15.9/ 15.5	19.5/ 25.8	13.0/ 23.1	5.7/ 5.1	7.9/ 18.8
Research Assistantship	N	8524/ 2968	2543/ 395	1732/ 71	1974/ 783	1294/ 825	226/ 218	269/ 134	483/ 340
	V%	43.8/ 29.9	70.3/ 66.5	69.6/ 60.7	54.2/ 47.6	38.0/ 37.0	12.3/ 15.2	23.7/ 28.5	14.4/ 15.8
	H%	100.0/100.0	29.8/ 13.3	20.3/ 2.4	23.2/ 26.4	15.2/ 27.8	2.7/ 7.3	3.2/ 4.5	5.7/ 18.2
Educ. Funds of Industry	N	735/ 245	207/ 46	201/ 19	92/ 52	59/ 33	18/ 17	71/ 18	87/ 60
	V%	3.8/ 2.5	5.7/ 7.7	8.1/ 16.2	2.5/ 3.2	1.7/ 1.5	1.0/ 1.2	6.3/ 3.8	2.6/ 1.8
	H%	100.0/100.0	28.2/ 18.8	27.3/ 7.8	12.5/ 21.2	8.0/ 13.5	2.4/ 6.9	9.7/ 7.3	11.8/ 24.5
Other Institutional Funds	N	1511/ 1018	207/ 34	111/ 8	303/ 168	300/ 233	218/ 187	90/ 63	280/ 324
	V%	7.8/ 10.3	5.7/ 5.7	4.5/ 6.8	8.3/ 10.2	8.8/ 10.5	11.9/ 13.0	7.9/ 13.4	8.4/ 9.5
	H%	100.0/100.0	13.7/ 3.3	7.3/ .8	20.1/ 16.5	19.9/ 22.9	14.4/ 18.4	6.0/ 6.2	18.5/ 31.8
Own Earnings	N	9586/ 6056	979/ 161	772/ 37	1229/ 618	2055/ 1376	1180/ 866	724/ 313	2642/ 2680
	V%	49.2/ 61.1	27.1/ 27.1	31.0/ 31.6	33.7/ 37.6	60.3/ 61.7	64.5/ 60.3	63.9/ 66.6	79.0/ 78.5
	H%	100.0/100.0	10.2/ 2.7	8.1/ .6	12.8/ 10.2	21.4/ 22.7	12.3/ 14.3	7.6/ 5.2	27.6/ 44.3
Spouse's Earnings	N	5135/ 3382	714/ 127	386/ 31	954/ 426	1028/ 732	591/ 502	371/ 178	1089/ 1384
	V%	26.4/ 34.1	19.7/ 21.4	15.5/ 26.5	26.2/ 25.9	30.2/ 32.8	32.3/ 34.9	32.7/ 37.9	32.6/ 40.5
	H%	100.0/100.0	13.9/ 3.8	7.5/ .9	18.6/ 12.6	20.0/ 21.6	11.5/ 14.8	7.2/ 5.3	21.2/ 40.9
Family Contributions	N	3589/ 1920	532/ 78	494/ 8	667/ 280	784/ 570	483/ 391	203/ 87	425/ 506
	V%	18.4/ 19.4	14.7/ 13.1	19.9/ 6.8	18.3/ 17.0	23.0/ 25.6	26.4/ 27.2	17.9/ 18.5	12.7/ 14.8
	H%	100.0/100.0	14.8/ 4.1	13.8/ .4	18.6/ 14.6	21.8/ 29.7	13.5/ 20.4	5.7/ 4.5	11.8/ 26.4
Other Loans	N	2286/ 1434	273/ 36	159/ 11	376/ 168	609/ 447	271/ 199	142/ 76	456/ 495
	V%	11.7/ 14.5	7.5/ 6.1	6.4/ 9.4	10.3/ 10.2	17.9/ 20.1	14.8/ 13.8	12.5/ 16.2	13.6/ 14.5
	H%	100.0/100.0	11.9/ 2.5	7.0/ .8	16.4/ 11.7	26.6/ 31.2	11.9/ 13.9	6.2/ 5.3	19.9/ 34.5
Other	N	1535/ 618	218/ 28	242/ 10	332/ 114	223/ 130	151/ 100	125/ 40	244/ 196
	V%	7.9/ 6.2	6.0/ 4.7	9.7/ 8.5	9.1/ 6.9	6.5/ 5.8	8.3/ 7.0	11.0/ 8.5	7.3/ 5.7
	H%	100.0/100.0	14.2/ 4.5	15.8/ 1.6	21.6/ 18.4	14.5/ 21.0	9.8/ 16.2	8.1/ 6.5	15.9/ 31.7
Unduplicated Total	N	19472/ 9915[5]	3619/ 594	2487/ 117	3642/ 1645	3406/ 2229	1830/ 1437	1133/ 470	3345/ 3415

1/Includes mathematics and computer sciences.
2/V denotes vertical percentage; H denotes horizontal percentage.
3/Includes AEC/ERDA Fellowship and NASA Traineeship which were formerly shown separately.
4/Includes Woodrow Wilson Fellowship which was formerly shown separately.
5/The 1,803 Ph.D.s who did not report source of support are omitted from this table.

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

TABLE 4 State of Doctoral Institution of Doctorate Recipients by Sex and Summary Field, 1983 1/

State of Doctoral Institution	Total		Field of Doctorate: Physical Sciences 2/		Engineering		Life Sciences		Social Sciences		Humanities		Prof. Fields		Education	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
U.S. Total	20705	10485	3807	617	2656	124	3823	1717	3675	2380	1964	1530	1224	504	3543	3604
Alabama	155	122	20	4	9	2	35	22	24	11	7	5	15	4	45	74
Alaska	6	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0
Arizona	324	137	80	5	21	0	53	16	42	31	25	13	22	6	81	66
Arkansas	86	40	10	0	4	0	30	6	9	3	6	4	16	5	11	22
California	2608	1200	576	98	471	20	424	182	535	360	231	194	144	51	226	294
Colorado	432	197	88	11	51	1	82	35	60	36	23	21	15	11	113	82
Connecticut	304	153	80	12	21	2	53	32	51	29	67	47	5	1	27	30
Delaware	37	21	11	5	15	0	4	6	5	5	1	4	0	0	1	1
D. C.	332	221	40	5	26	1	35	32	88	58	48	39	42	16	53	70
Florida	606	404	71	14	35	0	101	32	102	90	45	30	49	20	201	218
Georgia	362	219	42	3	44	3	73	23	62	43	16	32	33	14	92	101
Hawaii	81	39	9	4	0	0	30	8	28	8	8	12	0	0	6	7
Idaho	41	7	12	3	5	0	15	1	3	0	2	0	0	0	4	3
Illinois	1232	541	207	36	181	6	194	78	212	128	162	71	75	35	201	187
Indiana	692	313	129	19	90	2	101	50	120	56	99	72	41	18	112	96
Iowa	353	131	64	5	59	2	80	23	40	21	26	32	12	2	72	46
Kansas	250	115	37	3	30	0	67	21	32	22	22	16	4	9	57	44
Kentucky	149	56	10	4	10	0	41	10	30	12	22	13	26	2	10	15
Louisiana	208	80	36	3	17	0	43	12	21	16	21	19	42	4	28	26
Maine	15	7	3	0	1	0	4	1	4	2	1	0	0	0	2	4
Maryland	344	241	85	16	26	2	83	54	55	52	34	36	10	13	50	65
Massachusetts	1150	591	285	55	186	12	116	95	228	131	115	85	46	19	174	194
Michigan	922	442	132	16	114	4	185	84	186	114	75	56	44	25	186	143
Minnesota	309	160	41	2	37	1	99	29	44	40	37	26	10	9	41	53
Mississippi	161	80	10	0	12	0	31	7	53	16	5	5	13	0	37	52
Missouri	359	186	38	6	55	6	55	22	69	53	30	20	29	9	83	70
Montana	40	11	10	3	3	0	13	4	6	1	0	0	0	0	8	3
Nebraska	161	59	19	3	8	0	67	11	21	10	8	5	8	2	30	28
Nevada	25	4	8	0	0	0	3	0	3	2	0	0	0	0	11	2
New Hampshire	49	18	15	3	6	1	11	10	12	3	4	1	1	0	0	0
New Jersey	449	238	116	20	58	5	66	39	72	43	59	47	18	11	60	73
New Mexico	118	53	21	2	19	0	30	5	13	4	12	13	1	2	22	27
New York	1962	1192	384	60	220	13	348	180	436	365	235	200	101	51	236	322
North Carolina	491	264	82	22	56	3	172	86	72	48	46	36	11	7	51	62
North Dakota	36	12	8	0	0	0	16	4	7	3	1	1	0	0	4	4
Ohio	883	455	147	18	139	8	128	66	129	88	70	69	67	35	201	171
Oklahoma	259	139	20	9	36	3	51	20	47	24	15	6	19	8	71	69
Oregon	301	109	52	6	20	0	93	21	41	18	14	11	8	6	72	47
Pennsylvania	1053	606	174	38	149	10	141	84	171	131	85	94	85	27	248	222
Rhode Island	123	57	46	13	17	1	23	9	20	14	16	20	0	0	1	0
South Carolina	149	56	33	5	22	0	26	10	22	8	9	4	15	4	22	23
South Dakota	18	17	0	0	0	0	3	0	3	3	0	0	0	0	12	14
Tennessee	324	216	28	4	32	0	58	30	54	34	27	20	19	17	106	111
Texas	1069	549	208	33	148	9	172	109	146	103	93	60	94	28	208	206
Utah	258	103	44	3	29	2	40	19	55	26	12	9	11	5	67	39
Vermont	17	10	3	0	2	0	7	4	3	4	2	2	0	0	0	0
Virginia	383	197	56	8	74	0	72	36	69	35	24	16	20	9	68	93
Washington	390	167	86	10	31	2	103	41	59	36	42	30	20	5	48	43
West Virginia	84	39	5	1	10	0	15	4	19	6	5	2	2	0	28	26
Wisconsin	502	195	109	20	57	3	117	42	82	33	54	30	31	14	51	52
Wyoming	39	8	12	2	0	0	12	2	10	0	0	0	0	0	5	4
Puerto Rico	4	8	1	5	0	0	0	0	0	1	3	2	0	0	0	0

1/Refer to explanatory note on page 23.
2/Includes mathematics and computer sciences.

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

TABLE 5 Statistical Profile of Doctorate Recipients by Racial or Ethnic Group and U.S. Citizenship Status, 1983[1/]

		Total				American Indian	Asian				Black			
		U.S.	Non-U.S. Perm.	Non-U.S. Temp.	Total	Total	U.S.	Non-U.S. Perm.	Non-U.S. Temp.	Total	U.S.	Non-U.S. Perm.	Non-U.S. Temp.	Total
Total Number		24292	1272	4495	31190[2/]	81	490	550	2003	3120[2/]	918	8[3/]	363	1378[2/]
Male	%	62.1	74.8	86.1	66.4	63.0	63.5	78.2	86.3	81.4	44.6	87.8	93.4	60.2
Female		37.9	25.2	13.9	33.6	37.0	36.5	21.8	13.7	18.6	55.4	12.2	6.6	39.8
Doctoral Field														
Physical Sciences[4/]	%	12.9	17.5	20.6	14.2	11.1	19.0	22.4	23.4	22.4	2.8	7.3	8.3	4.6
Engineering		4.8	25.1	26.0	8.9	1.2	13.5	32.9	31.3	28.9	2.1	12.2	10.5	4.9
Life Sciences		18.2	15.0	17.2	17.8	9.9	26.9	19.5	16.4	18.6	7.0	12.2	24.0	11.9
Social Sciences		20.7	14.9	12.7	19.4	14.8	13.1	8.2	11.5	11.3	20.2	17.1	17.1	18.9
Arts & Humanities		12.3	9.3	5.7	11.2	7.4	7.1	2.2	3.5	3.8	8.0	7.3	7.2	7.7
Education		25.6	11.5	12.3	22.9	54.3	14.9	8.2	9.1	9.7	53.4	31.7	27.5	45.4
Professions & Other		5.5	6.8	5.4	5.6	1.2	5.5	6.7	4.8	5.3	6.6	12.2	5.5	6.6
Median Age at Doctorate		32.9	32.7	32.3	32.8	35.8	33.5	32.2	32.0	32.2	37.0	36.1	34.3	35.8
Median Time Lapse BA-PHD														
Total Time	Yrs	10.0	9.3	9.0	9.8	11.0	10.7	9.6	9.2	9.5	13.2	8.5	8.0	11.3
Registered Time		6.8	6.4	5.9	6.6	7.5	7.0	6.5	6.1	6.3	7.5	6.2	5.1	6.7
Graduate School Support														
Federal Fellow/Trainee	%	18.6	8.7	6.8	15.9	27.2	26.1	7.5	6.7	9.7	17.9	7.3	8.8	14.7
GI Bill		5.2	.0	.0	4.1	7.4	2.7	.0	.0	.4	4.9	.0	.0	3.3
Other Fellowship		22.0	21.5	19.0	20.8	17.3	19.6	19.6	19.3	19.0	26.1	15.9	18.5	23.2
Teaching Assistantship		46.1	52.1	40.9	44.0	30.9	45.1	51.6	45.0	45.2	23.9	40.2	27.5	25.7
Research Assistantship		35.7	52.4	47.2	36.8	27.2	46.1	65.6	58.3	56.4	15.8	40.2	33.3	21.8
Educ./Inst. Funds		11.7	10.1	9.7	11.0	6.2	11.0	9.1	9.9	9.7	13.1	7.3	9.4	11.7
Own/Spouse Earnings		68.4	51.7	28.1	59.5	66.7	56.3	40.9	21.4	29.9	70.3	64.6	37.5	60.8
Family Contributions		17.1	22.2	23.6	17.7	4.9	15.1	20.9	27.4	23.7	13.6	15.9	22.0	15.9
Natl Direct Stdnt Loan		16.7	9.1	.8	13.5	12.3	14.1	5.1	.6	3.5	19.2	26.8	1.1	14.7
Other Loans		13.9	9.3	4.7	11.9	14.8	11.0	7.1	3.2	5.0	18.0	23.2	6.6	15.2
Other		3.8	7.2	25.1	6.9	9.9	3.1	4.7	14.6	10.7	4.1	7.3	35.5	12.6
Unknown		2.3	1.4	3.8	5.8	2.5	1.2	1.1	2.9	4.4	2.6	3.7	6.3	4.3
Postdoctoral Study Plans	%	19.1	19.4	24.7	19.3	2.5	26.7	24.0	28.4	26.7	7.2	17.1	12.9	9.2
Planned Employment After Doctorate		78.1	77.3	70.5	74.4	92.6	70.4	73.1	67.0	67.3	90.7	75.6	81.8	86.9
Educ. Institution		46.1	38.8	43.4	43.8	55.6	33.7	27.1	39.5	35.6	59.9	48.8	53.2	57.2
Industry/Business		14.7	26.8	11.6	14.2	9.9	22.4	38.2	14.8	19.9	8.5	8.5	9.5	7.6
Government		7.8	3.8	8.9	7.5	11.1	7.6	2.4	7.1	6.2	11.2	8.5	12.7	11.4
Non-profit		5.7	2.9	2.3	4.9	6.2	2.9	2.0	2.4	2.4	5.0	1.2	2.8	4.1
Other & Unknown		4.0	5.0	4.2	3.9	9.9	3.9	3.5	3.0	3.2	6.1	8.5	7.7	6.6
Postdoct Status Unknown	%	2.7	3.3	4.8	6.3	4.9	2.9	2.9	4.6	6.0	2.1	7.3	5.2	3.8
Definite Postdoct Study	%	14.6	11.9	14.5	14.0	1.2	18.4	14.5	16.5	16.1	4.7	9.8	5.5	5.2
Seeking Postdoct Study		4.5	7.5	10.2	5.3	1.2	8.4	9.5	11.8	10.6	2.5	7.3	7.4	4.1
Definite Employment		57.0	47.6	49.1	53.6	53.1	46.5	44.4	46.7	45.3	63.0	36.6	47.1	56.9
Seeking Employment		21.1	29.6	21.3	20.8	39.5	23.9	28.7	20.3	22.0	27.8	39.0	34.7	30.0
Employment Location after Doctorate														
U.S.	%[5/]	91.6	83.3	28.4	82.9	86.0	89.9	85.7	37.6	54.4	86.7	56.7	7.0	68.1
Foreign		1.3	8.3	64.6	10.0	2.3	3.9	8.2	53.8	37.8	.3	20.0	80.0	19.9
Unknown		7.1	8.4	7.1	7.1	11.6	6.1	6.1	8.6	7.8	13.0	23.3	7.0	12.0

1/See discussion on page 23 for description of past changes in the survey question on racial/ethnic group.
2/Includes individuals who did not report their citizenship at time of doctorate.
3/Includes those who provided no usable response to the item on racial/ethnic group.
4/Includes mathematics and computer sciences.
5/The base for this percentage is the number of doctorates in the column caption group who have found definite employment.

Table 5. (Continued)

White				Puerto Rican	Mexican-American				Other Hispanic				Other & Unknown		
U.S.	Non-U.S. Perm.	Non-U.S. Temp.	Total	Total	U.S.	Non-U.S. Perm.	Non-U.S. Temp.	Total	U.S.	Non-U.S. Perm.	Non-U.S. Temp.	Total	U.S.	Non-U.S.	Total
21645	544	1538	23776[2]	130	173	6	21	201[2]	235	63	321	634[2]	625	275	1870[2][3]
62.8	70.0	83.7	64.3	48.5	61.3	66.7	95.2	65.2	50.6	65.1	83.5	69.4	71.4	90.5	72.9
37.2	30.0	16.3	35.7	51.5	38.7	33.3	4.8	34.8	49.4	34.9	16.5	30.6	28.6	9.5	27.1
13.2	15.1	20.6	13.7	8.5	4.6	.0	14.3	5.5	8.1	11.1	20.9	14.8	18.6	16.4	14.9
4.7	20.6	24.4	6.3	4.6	2.3	.0	38.1	6.0	3.4	17.5	19.6	12.9	7.0	22.5	10.9
18.8	10.7	14.4	18.4	12.3	4.6	33.3	28.6	8.0	10.2	14.3	26.5	18.8	16.5	18.9	14.7
20.7	20.0	14.0	20.3	15.4	24.9	50.0	19.0	25.4	30.6	20.6	7.5	17.8	22.2	13.8	22.5
12.4	14.7	7.7	12.2	18.5	12.1	16.7	.0	10.9	22.1	25.4	7.8	15.5	13.0	7.3	12.1
24.6	12.1	12.4	23.6	36.2	47.4	.0	.0	40.8	21.7	7.9	14.6	16.7	16.5	14.5	18.1
5.5	6.8	6.4	5.6	4.6	4.0	.0	.0	3.5	3.8	3.2	3.1	3.5	6.2	6.5	6.7
32.7	32.5	31.9	32.6	34.3	35.3	36.5	33.8	35.2	34.1	33.8	33.6	33.7	32.3	33.2	32.8
9.8	8.9	8.7	9.7	11.8	11.5	10.5	9.8	11.2	10.2	10.0	9.4	9.8	9.6	9.5	9.6
6.8	6.4	5.8	6.7	6.5	7.4	7.2	5.3	7.2	7.0	6.1	5.4	6.0	7.0	6.1	6.6
18.5	9.6	6.4	17.5	20.8	33.5	33.3	4.8	30.3	20.4	9.5	7.5	12.3	12.3	6.5	5.2
5.4	.0	.0	4.9	4.6	5.2	.0	.0	4.5	4.7	.0	.0	1.7	1.9	.0	.6
22.1	23.3	20.5	22.0	32.3	28.3	66.7	.0	26.4	20.0	22.2	19.0	19.2	13.0	10.9	6.0
47.8	56.6	43.9	47.7	36.9	37.6	66.7	14.3	36.3	44.3	39.7	30.2	35.8	28.0	26.5	13.4
37.0	44.7	43.4	37.6	21.5	22.0	33.3	9.5	20.9	27.7	30.2	27.7	27.3	24.5	30.2	12.8
11.8	11.8	9.5	11.7	8.5	11.6	33.3	19.0	12.9	12.3	9.5	13.7	12.5	7.5	4.7	3.3
69.8	60.3	36.2	67.4	50.0	67.1	50.0	9.5	60.2	66.8	57.1	31.2	46.4	31.8	18.5	13.6
17.6	24.3	23.0	18.1	17.7	12.1	16.7	9.5	11.9	15.7	20.6	14.6	15.3	8.3	14.5	5.0
16.8	9.2	.8	15.5	19.2	24.9	66.7	.0	23.9	25.1	15.9	2.2	12.0	8.5	.7	3.0
13.9	9.2	6.4	13.3	21.5	16.8	33.3	9.5	16.4	18.3	7.9	5.3	10.4	6.7	2.9	2.7
3.8	9.4	29.5	5.6	4.6	5.2	.0	81.0	12.9	4.7	14.3	39.6	23.5	2.2	39.6	6.7
1.0	.9	2.7	1.2	4.6	2.3	.0	.0	2.0	1.3	1.6	3.4	4.3	45.8	14.9	68.9
19.8	15.4	24.4	20.0	11.5	12.7	16.7	14.3	12.9	13.6	15.9	19.3	16.4	13.6	22.2	7.9
78.5	81.8	71.5	78.0	83.1	85.5	83.3	85.7	85.6	83.4	81.0	78.2	79.0	46.6	64.4	26.0
46.2	49.6	45.2	46.1	63.8	54.9	33.3	61.9	54.7	48.5	38.1	48.3	46.7	24.3	40.4	14.6
15.0	18.9	10.3	14.8	7.7	8.1	.0	4.8	7.5	12.3	25.4	8.4	11.4	10.4	9.1	4.9
7.7	4.2	9.4	7.7	3.8	11.0	33.3	19.0	12.9	11.5	4.8	13.7	11.7	3.7	7.3	2.5
5.8	3.9	2.1	5.5	5.4	6.9	16.7	.0	6.5	6.8	3.2	2.5	4.1	2.9	2.5	1.4
3.8	5.1	4.6	3.9	2.3	4.6	.0	.0	4.0	4.3	9.5	5.3	5.2	5.3	5.1	2.6
1.7	2.8	4.2	1.9	5.4	1.7	.0	.0	1.5	3.0	3.2	2.5	4.6	39.8	13.5	66.1
15.3	9.4	14.4	15.1	6.9	9.2	16.7	4.8	9.0	10.2	9.5	11.8	10.7	9.9	16.4	5.8
4.6	6.1	9.9	4.9	4.6	3.5	.0	9.5	4.0	3.4	6.3	7.5	5.7	3.7	5.8	2.1
57.7	52.4	50.3	57.0	60.0	62.4	50.0	61.9	62.2	58.3	55.6	59.2	57.4	33.0	48.7	18.7
20.8	29.4	21.1	21.0	23.1	23.1	33.3	23.8	23.4	25.1	25.4	19.0	21.6	13.6	15.6	7.3
92.1	86.0	27.0	88.2	93.6	90.7	100.0	.0	81.6	88.3	71.4	16.8	49.2	84.5	20.1	59.1
1.3	7.4	67.1	5.2	1.3	.0	.0	100.0	10.4	2.2	5.7	79.5	42.9	2.4	70.1	29.1
6.7	6.7	5.9	6.6	5.1	9.3	.0	.0	8.0	9.5	22.9	3.7	8.0	13.1	9.7	11.7

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

TECHNICAL APPENDIX:
Notes on Revision to Survey of Earned Doctorates Specialties List

As a federally sponsored survey conducted with the assistance of academic institutions, the Survey of Earned Doctorates (SED) is periodically reviewed and approved by the Federal Education Data Acquisition Council (FEDAC), housed in the Department of Education. In 1981 FEDAC required that, beginning with the 1982-83 academic year, all academic-sector questionnaires use the National Center for Educational Statistics' "Classification of Instructional Programs." For this reason, the SED Specialties List was revised to be consistent with the NCES taxonomy and to allow comparison of the Doctorate Records File data with the federal surveys of doctorate recipients conducted by NCES and NSF.

Although the NCES taxonomy and the SED Specialties List had some differences in the humanities, social sciences, and professional field areas, the two systems had nearly the same categories for the physical sciences, mathematics, life sciences, engineering, and psychology. Thus, these broad fields are similarly represented in the old and new SED Specialties List, with some minor changes in aggregation of subfields. These changes may cause some inconsistency in time series analysis, but for the most part, this should be minimal.

Although the majority of fine fields translate directly from the old to the new Specialty List, the reader should be aware of changes in certain fields that may be reflected in alterations of the summary statistics. Within the physical sciences, the broad field "earth, environmental, and marine sciences" was changed to "earth, atmospheric, and marine sciences." Five new specialties were added to engineering: communications, engineering science, naval architecture and marine engineering, ocean engineering, and polymer engineering.

Among the life sciences, the biological sciences were revised to distinguish "human and animal" from "plant" sciences: "genetics" was split into "plant genetics" and "human and animal genetics;" "pathology" was moved from the medical sciences and became "plant pathology" and "human and animal pathology;" and microbiology and bacteriology were broken out into separate fields. Two fields--parasitology and pharmacology--were moved from the medical to the biological sciences. In addition, "cytology" was changed to "cell biology." The medical sciences field was modified to exclude primarily research fields (parasitology, pathology, and pharmacology) and was renamed "health sciences." "Audiology and speech pathology" was moved from the professional fields into health sciences. Within the agricultural sciences, "animal husbandry" was replaced by "animal breeding and genetics" and "animal science and nutrition."

Two new fields--demography and public policy studies--were added to the social sciences. "Communications" and "public administration" were moved from this field grouping to the professional fields. Within psychology, cognitive and qualitative psychology were added as two new subfields. Several fine fields, including "letters" and five new languages, were added to the humanities. Within the professional fields, two new subfield groupings were created: "business administration," for which more detail was provided by the addition of nine new fine fields, and "communications" which includes communications from the social sciences and three new fine fields.

In the following pages, crosswalks between the old and the new SED Specialties Lists are presented. Appendix Table A presents the old and the new field categories for 1982 and 1983 doctorate recipients to illustrate the changes not only between fine fields but among broad field groupings. A table displaying ten years of data using the new field taxonomy is presented in Appendix Table B.

APPENDIX TABLE A Field Taxonomy Conversion: 1982 to 1983 Specialties List

1982 Field Codes & Names	Old Code 1982	New Code 1982	New Code 1983	1983 Field Codes & Names
Total All Fields	31074	31074	31190	Total All Fields
Physical Sciences	4284	4284	4424	Physical Sciences
Mathematics	720	720	701	Mathematics
085 Applied Mathematics	108	108	125	420 Applied Mathematics
000 Algebra	60	60	55	425 Algebra
010 Analysis & Functional Analysis	98	98	76	430 Analysis & Functional Analysis
020 Geometry	32	32	44	435 Geometry
030 Logic	17	17	21	440 Logic
040 Number Theory	28	28	19	445 Number Theory
050 Probability & Math Statistics	165	165	151	450 Probability & Math Statistics
060 Topology	45	45	44	455 Topology
080 Computing Theory & Practice	11	11	12	460 Computing Theory & Practice
082 Operations Research	36	36	20	465 Operations Research
098 Mathematics, General	84	84	86	498 Mathematics, General
099 Mathematics, Other	36	36	48	499 Mathematics, Other
Computer Science	220	220	285	*Computer Science
079 Computer Sciences	220	220	263	400 Computer Sciences
	-	-	22	410 Information Sciences & Systems
Physics and Astronomy	1013	1013	1042	Physics and Astronomy
101 Astronomy	52	52	50	500 Astronomy
102 Astrophysics	50	50	65	505 Astrophysics
132 Acoustics	11	11	14	560 Acoustics
110 Atomic and Molecular	96	96	71	561 Atomic and Molecular
	-	-	1	562 Electron
140 Elementary Particles	118	118	136	564 Elementary Particles
134 Fluids	13	13	15	566 Fluids
150 Nuclear Structure	53	53	90	568 Nuclear
136 Optics	42	42	50	569 Optics
135 Plasma	69	69	72	570 Plasma
	-	-	10	572 Polymer
160 Solid State	235	235	221	574 Solid State
198 Physics, General	167	167	150	578 Physics, General
199 Physics, Other	107	107	97	579 Physics, Other
Chemistry	1674	1674	1759	Chemistry
200 Analytical	190	190	264	520 Analytical
210 Inorganic	220	220	215	522 Inorganic
230 Nuclear	20	20	13	524 Nuclear
220 Organic	519	519	503	526 Organic
270 Pharmaceutical	55	55	78	528 Pharmaceutical
240 Physical	324	324	311	530 Physical
275 Polymer	50	50	62	532 Polymer
250 Theoretical	32	32	48	534 Theoretical
298 Chemistry, General	175	175	177	538 Chemistry, General
299 Chemistry, Other	89	89	88	539 Chemistry, Other
Earth, Environmental, and Marine Sciences	657	657	637	Earth, Atmospheric, and Marine Sciences
381 Atmospheric Phys & Chem	17	17	21	510 Atmospheric Phys & Chem
382 Atmospheric Dynamics	22	22	16	512 Atmospheric Dynamics
	-	-	18	514 Meteorology
	-	-	16	518 Atmos & Meteor Sci, Gen
383 Atmos & Meteor Sci, Other	26	26	26	519 Atmos & Meteor Sci, Oth
330 Structural Geology	25	25	105	540 Geology
305 Geochemistry	51	51	48	542 Geochemistry
341 Geophysics (Solid Earth)	81	81	75	544 Geophysics and Seismology
320 Paleontology	24	24	17	546 Paleontology
301 Mineralogy, Petrology	41	41	24	548 Mineralogy, Petrology
310 Stratigraphy, Sedimentation	47	47	25	550 Stratigraphy, Sedimentation
350 Geomorphology & Glacial Geo	21	21	10	552 Geomorphology & Glacial Geo
391 Applied Geology	25	25	8	554 Applied Geology
398 Earth Sciences, General	38	38	15	558 Geological Sciences, General
399 Earth Sciences, Other	29	29	21	559 Geological Sciences, Other

APPENDIX TABLE A (continued)

1982 Field Codes & Names	Old Code 1982	New Code 1982	New Code 1983	1983 Field Codes & Names
388 Environmental Sci, General	22	53	50	580 Environmental Sciences
389 Environmental Sci, Other	31	-	-	
360 Hydrology & Water Resources	24	24	20	585 Hydrology & Water Resources
370 Oceanography	92	92	87	590 Oceanography
397 Marine Sciences, Other	41	41	22	595 Marine Sciences
	-	-	13	599 Physical Sciences, Other
Engineering	2646	2646	2780	Engineering
400 Aeronautical & Astronautical	86	86	106	300 Aerospace, Aeronaut & Astronaut
410 Agricultural	48	48	58	303 Agricultural
415 Biomedical	59	59	73	306 Bioengineering & Biomedical
435 Ceramic	20	20	24	309 Ceramic
430 Chemical	306	306	349	312 Chemical
420 Civil	308	308	354	315 Civil
	-	-	25	318 Communications
437 Computer	72	72	83	321 Computer
440 Electrical	470	470	-	
445 Electronics	74	74	-	
	-	-	517	324 Electrical, Electronics
460 Engineering Mechanics	103	103	68	327 Engineering Mechanics
465 Engineering Physics	12	12	10	330 Engineering Physics
	-	-	30	333 Engineering Science
480 Sanitary & Environmental	60	60	43	336 Environmental Health Engineering
450 Industrial	79	79	86	339 Industrial
497 Materials Science	147	147	157	342 Materials Science
470 Mechanical	334	334	311	345 Mechanical
475 Metallurgy	88	88	87	348 Metallurgical
486 Mining	7	7	22	351 Mining
	-	-	4	354 Naval Architecture, Marine Eng
455 Nuclear	121	121	103	357 Nuclear
	-	-	12	360 Ocean
478 Operations Research	58	58	44	363 Operations Research
479 Fuel Tech & Petroleum Eng	27	27	22	366 Petroleum
	-	-	21	369 Polymer
476 Systems Science	49	49	57	372 Systems
498 Engineering, General	29	29	30	398 Engineering, General
499 Engineeringr, Other	89	89	84	399 Engineering, Other
Life Sciences	5580	5709	5540	Life Sciences
Biological Sciences	3503	3890	3732	Biological Sciences
540 Biochemistry	649	649	645	100 Biochemistry
542 Biophysics	91	91	88	105 Biophysics
	-	-	10	110 Bacteriology
	-	-	19	115 Plant Genetics
	-	-	29	120 Plant Pathology
567 Physiology, Plant	56	56	67	125 Plant Physiology
550 Botany	146	146	116	129 Botany, Other
545 Anatomy	163	163	104	130 Anatomy
544 Biometrics & Biostatistics	59	59	45	133 Biometrics & Biostatistics
546 Cytology	41	41	119	136 Cell Biology
560 Ecology	173	173	183	139 Ecology
547 Embryology	10	10	13	142 Embryology
	-	-	28	145 Endocrinology
571 Entomology	170	170	141	148 Entomology
548 Immunology	151	151	154	151 Immunology
572 Molecular Biology	224	224	225	154 Molecular Biology
564 Microbiology & Bacteriology	325	325	-	
			308	157 Microbiology
589 Neurosciences	117	117	134	160 Neurosciences
576 Nutrition	119	119	111	163 Nutritional Sciences
	-	14	9	166 Parasitology
	-	-	60	169 Toxicology
	-	-	95	170 Human & Animal Genetics
570 Genetics	176	176	-	
	-	97	96	175 Human & Animal Pathology
	-	276	217	180 Human & Animal Pharmacology
566 Physiology, Animal	309	309	243	185 Human & Animal Physiology
569 Zoology	199	199	192	189 Zoology, Other
598 Biological Sciences, General	196	196	174	198 Biological Sciences, General
599 Biological Sciences, Other	129	129	106	199 Biological Sciences, Other

APPENDIX TABLE A (continued)

1982 Field Codes & Names	Old Code 1982	New Code 1982	New Code 1983	1983 Field Codes & Names
Medical Sciences	947	689	636	Health Sciences
	-	129	113	200 Audiology & Speech Pathology
528 Environmental Health	39	39	38	210 Environmental Health
	-	-	51	215 Public Health
522 Public Health & Epidemiology	165	165	-	
	-	-	76	220 Epidemiology
526 Nursing	112	112	126	230 Nursing
537 Pharmacy	81	81	81	240 Pharmacy
523 Veterinary Medicine	41	41	45	250 Veterinary Medicine
538 Health Sciences, General	16	16	20	298 Health Sciences, General
539 Health Sciences, Other	106	106	86	299 Health Sciences, Other
527 Parasitology	14	-	-	*See 166*
534 Pathology	97	-	-	*See 175*
536 Pharmacology	276	-	-	*See 180*
Agricultural Sciences	1130	1130	1172	Agricultural Sciences
501 Agricultural Economics	179	179	157	000 Agricultural Econonomics
	-	-	25	005 Animal Breeding & Genetics
502 Animal Husbandry	22	22	-	
510 Animal Science & Nutrition	133	133	56	010 Animal Nutrition
	-	-	92	019 Animal Science, Other
500 Agronomy	159	159	149	020 Agronomy
	-	-	71	025 Plant Breeding & Genetics
511 Phytopathology	114	114	92	030 Plant Pathology
	-	-	16	039 Plant Sciences, Other
503 Food Science & Technology	110	110	141	040 Food Sciences
507 Soils & Soil Science	83	83	85	045 Soil Sciences
506 Horticulture	88	88	72	050 Horticulture
504 Fish & Wildlife	65	65	-	
	-	-	36	055 Fisheries Science
	-	-	31	060 Wildlife Management
505 Forestry	78	78	90	065 Forestry Science
518 Agriculture, General	5	5	7	098 Agriculture, General
519 Agriculture, Other	94	94	52	099 Agriculture, Other
Social Sciences	3099	2678	2748	Social Sciences
700 Anthropology	333	333	373	650 Anthropology
745 Area Studies	19	19	20	652 Area Studies
760 Criminology	36	36	49	658 Criminology
	-	-	26	662 Demography
720 Economics	737	737	792	666 Economics
725 Econometrics	24	24	21	668 Econometrics
740 Geography	106	106	121	670 Geography
755 International Relations	77	77	77	674 International Relations
751 Political Science	459	459	397	678 Political Science & Government
	-	-	68	682 Public Policy Studies
710 Sociology	568	568	525	686 Sociology
727 Statistics	43	43	47	690 Statistics
770 Urban & Regional Planning	93	93	74	694 Urban Studies
798 Social Sciences, General	34	34	17	698 Social Sciences, General
799 Social Sciences, Other	149	149	141	699 Social Sciences, Other
708 Communications	248	-	-	*See 959*
752 Public Administration	173	-	-	*See 976*
Psychology	3158	3158	3307	Psychology
600 Clinical	1167	1167	1209	600 Clinical
	-	-	65	603 Cognitive
642 Comparative	12	12	11	606 Comparative
610 Counseling & Guidance	348	348	432	609 Counseling
620 Developmental & Gerontology	192	192	219	612 Developmental
641 Experimental	240	240	209	615 Experimental
630 Educational	140	140	153	618 Educational
650 Industrial & Personnel	83	83	90	621 Industrial & Organizational
660 Personality	36	36	32	624 Personality
643 Physiological	90	90	94	627 Physiological
670 Psychometrics	8	8	10	630 Psychometrics

APPENDIX TABLE A (continued)

1982 Field Codes & Names	Old Code 1982	New Code 1982	New Code 1983	1983 Field Codes & Names
	-	-	14	633 Quantitative
635 School	166	166	121	636 School
680 Social	179	179	191	639 Social
698 Psychology, General	242	242	287	648 Psychology, General
699 Psychology, Other	255	255	170	649 Psychology, Other
Humanities	**3559**	**3559**	**3494**	**Humanities**
804 History, American	271	271	224	700 History, American
805 History, European	158	158	168	705 History, European
807 History & Philosophy of Sci	29	29	13	710 History of Science
	-	-	58	718 History, General
806 History, Other	234	234	153	719 History, Other
827 Classical Languages	60	60	44	720 Classics
836 Comparative Literature	118	118	124	723 Comparative Literature
835 Linguistics	191	191	164	729 Linguistics
812 English Lang & Lit	617	617	-	
831 Speech as Dramatic Art	38	38	48	736 Speech & Debate
	-	-	3	738 Letters, General
	-	-	19	739 Letters, Other
808 American Studies	64	64	98	770 American Studies
832 Archaeology	21	21	30	773 Archaeology
802 History & Criticism of Art	138	138	150	776 Art History & Criticism
830 Music	402	402	391	780 Music
834 Philosophy	251	251	242	785 Philosophy
833 Religion	149	149	173	790 Religion
809 Theater	94	94	107	795 Theatre
Language and Literature	644	644	1218	Language and Literature
811 American Lang & Lit	154	154	173	732 American Literature
	-	-	44	726 English Language
	-	-	497	733 English Literature
823 French	119	119	121	740 French
821 German	74	74	77	743 German
826 Italian	17	17	22	746 Italian
824 Spanish & Portuguese	177	177	161	749 Spanish
822 Russian	24	24	24	752 Russian
	-	-	9	755 Slavic
	-	-	16	758 Chinese
	-	-	5	762 Japanese
	-	-	11	765 Hebrew
	-	-	8	768 Arabic
829 Language, Other	79	79	50	769 Other Languages
878 Humanities, General	28	28	17	798 Humanities, General
879 Humanities, Other	52	52	50	799 Humanities, Other
Professional Fields	**1492**	**1784**	**1728**	**Professional Fields**
Business Administration	686	686	755	Business Administration
	-	-	163	900 Accounting
	-	-	94	905 Banking & Finance
	-	-	180	910 Business Admin & Management
	-	-	25	915 Business Economics
	-	-	73	920 Marketing Management & Research
	-	-	8	925 Business Statistics
	-	-	38	930 Operations Research
	-	-	53	935 Organizational Behavior
	-	-	36	938 Business & Management, General
882 Business Administration	686	686	85	939 Business & Management, Other
	-	266	252	Communications
	-	-	51	940 Communications Research
884 Journalism	18	18	21	945 Journalism
	-	-	27	950 Radio & Television
	-	-	60	958 Communications, General
	-	248	93	959 Communications, Other

APPENDIX TABLE A (continued)

1982 Field Codes & Names	Old Code 1982	New Code 1982	New Code 1983	1983 Field Codes & Names
Other Professional Fields	788	832	721	Other Professional Fields
885 Speech & Hearing Science	129	-	-	
	-	-	34	960 Architecture, Environmental Design
883 Home Econonomics	98	98	79	964 Home Economics
886 Law & Jurisprudence	21	21	19	968 Law
891 Library & Archival Science	83	83	51	972 Library & Archival Science
	-	173	114	976 Public Admininistration
887 Social Work	217	217	184	980 Social Work
881 Theology	206	206	223	984 Theology
	-	-	0	988 Professional Fields, General
897 Professional Fields, Other	34	34	17	989 Professional Fields, Other
Education	7232	7232	7147	Education
929 Curriculum & Instruction	809	809	856	800 Curriculum & Instruction
930 Educational Admin & Supv	1470	1470	1619	805 Educational Admin & Supervision
960 Audio-visual Media	76	76	88	810 Educational Media
920 Educational Meas & Statistics	94	94	-	
	-	-	86	815 Educational Statistics & Research
	-	-	51	820 Educational Testing, Eval & Meas
910 Educational Psychology	447	447	274	822 Educational Psychology
	-	-	88	825 School Psychology
900 Foundations of Education	214	214	142	830 Social Foundations
950 Special Education	347	347	349	835 Special Education
940 Guidance, Counseling, Stu Pers	539	539	502	840 Student Counseling, Personnel Serv
918 Higher Education	653	653	632	845 Higher Education
975 Early Childhood	77	77	63	850 Pre-elem Education
908 Elementary Education, General	149	149	111	852 Elementary Education
	-	-	1	854 Junior High Education
909 Secondary Education, General	104	104	87	856 Secondary Education
919 Adult Education	257	257	221	858 Adult & Continuing Education
Teaching Fields	1332	1332	1328	Teaching Fields
970 Agriculture Education	35	35	47	860 Agricultural Education
972 Art Education	55	55	58	861 Art Education
974 Business Education	44	44	62	862 Business Education
976 English Education	67	67	76	864 English Education
978 Foreign Languages Education	31	31	25	866 Foreign Languages Education
988 Physical & Health Education	351	351	-	
	-	-	99	868 Health Education
980 Home Economics Education	33	33	25	870 Home Economics Education
982 Industrial Arts Education	39	39	19	872 Industrial Arts Education
984 Mathematics Education	50	50	62	874 Mathematics Education
986 Music Education	103	103	112	876 Music Education
987 Nursing Education	25	25	17	878 Nursing Education
	-	-	236	880 Physical Education
989 Reading Education	152	152	169	882 Reading Education
990 Science Education	86	86	78	884 Science Education
992 Social Science Education	29	29	39	885 Social Science Education
993 Speech Education	12	12	2	886 Speech Education
994 Vocational Education	191	191	138	888 Trade & Industrial Education
996 Other Teaching Fields	29	29	64	889 Other Teaching Fields
998 Education, General	418	418	347	898 Education, General
999 Education, Other	246	246	302	899 Education, Other
899 Other and Unspecified	24	24	22	999 Other and Unspecified

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

APPENDIX TABLE B Number of Doctorate Recipients by Fine Field, 1974-1983

	Year of Doctorate									
	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Total All Fields	33047	32951	32946	31717	30873	31237	31015	31345	31074	31190
Physical Sciences	4976	4857	4509	4379	4193	4299	4111	4170	4284	4424
Mathematics	1211	1147	1003	933	838	769	744	728	720	701
Applied Mathematics	136	101	105	113	108	111	102	118	108	125
Algebra	125	126	116	88	87	88	78	56	60	55
Analysis and Functional Analysis	208	180	141	153	118	111	91	105	98	76
Geometry	38	26	23	26	22	25	35	29	32	44
Logic	19	38	34	17	24	21	24	18	17	21
Number Theory	23	27	26	32	18	17	28	24	28	19
Probability and Math Statistics	148	174	165	159	168	165	151	163	165	151
Topology	117	94	72	70	56	61	57	55	45	44
Computing Theory and Practice	203	166	148	101	55	25	13	16	11	12
Operations Research	24	55	36	42	43	43	41	36	36	20
Mathematics, General	122	114	94	88	92	80	83	77	84	86
Mathematics, Other	48	46	43	44	47	22	41	31	36	48
Computer Science	-	-	-	31	121	210	218	232	220	285
Computer Sciences	-	-	-	31	121	210	218	232	220	263
Information Sciences and Systems	-	-	-	-	-	-	-	-	-	22
Physics and Astronomy	1339	1300	1237	1150	1067	1108	983	1015	1013	1042
Astronomy	57	60	78	63	64	58	52	50	52	50
Astrophysics	76	71	72	57	74	57	69	59	50	65
Acoustics	13	12	9	12	14	13	23	13	11	14
Atomic and Molecular	122	140	116	105	88	72	69	66	96	71
Electron	-	-	-	-	-	-	-	-	-	1
Electromagnitism	8	10	12	9	10	6	-	-	-	-
Elementary Particles	146	126	130	138	135	121	117	119	118	136
Fluids	20	22	20	14	13	14	15	14	13	15
Mechanics	4	3	4	-	-	-	-	-	-	-
Nuclear	145	130	96	94	77	103	73	63	53	90
Optics	24	33	50	31	33	46	43	54	42	50
Plasma	57	53	75	72	68	62	59	65	69	72
Polymer	-	-	-	-	-	-	-	-	-	10
Thermal	16	9	4	7	11	7	5	7	-	-
Solid State	349	321	282	258	243	243	201	253	235	221
Physics, General	180	173	175	173	151	194	165	164	167	150
Physics, Other	122	137	114	117	86	112	92	88	107	97
Chemistry	1797	1776	1624	1571	1544	1566	1538	1612	1674	1759
Analytical	147	142	152	174	178	207	185	229	190	264
Agricultural and Food	13	8	14	6	8	11	-	-	-	-
Inorganic	201	229	226	198	201	195	189	188	220	215
Nuclear	31	21	25	24	13	14	14	12	20	13
Organic	615	605	497	479	454	469	484	494	519	503
Pharmaceutical	65	66	55	50	51	43	52	52	55	78
Physical	389	393	355	339	310	326	282	275	324	311
Polymer	35	40	42	55	57	67	61	62	50	62
Theoretical	51	46	48	38	46	50	47	33	32	48
Chemistry, General	197	169	144	146	161	126	157	193	175	177
Chemistry, Other	53	57	66	62	65	58	67	74	89	88
Earth, Atmospheric, and Marine Sci	629	634	645	694	623	646	628	583	657	637
Atmospheric Physics and Chemistry	-	-	16	15	22	16	19	15	17	21
Atmospheric Dynamics	-	-	14	32	21	26	20	27	22	16
Meteorology	57	45	23	-	-	-	-	-	-	18
Atmos and Meteorological Sci, Gen	-	-	-	-	-	-	-	-	-	16
Atmos and Meteorological Sci, Other	-	-	23	46	34	42	51	33	26	26
Geology	15	16	22	22	28	28	20	27	25	105
Geochemistry	46	49	49	57	51	57	51	48	51	48
Geophysics and Seismology	-	-	40	73	60	81	71	72	81	75
Geophysics, Solid Earth & Atmos	80	92	33	-	-	-	-	-	-	-
Paleontology	41	41	43	26	31	36	21	19	24	17
Fuel Technology, Petroleum	14	9	4	5	2	4	-	-	-	-
Mineralogy, Petrology	41	43	48	60	34	33	47	30	41	24
Stratigraphy, Sedimentation	48	43	57	42	32	34	40	42	47	25
Geomorphology and Glacial Geology	23	30	29	22	24	14	15	13	21	10
Applied Geology	31	22	23	20	15	19	27	21	25	8
Geological Sciences, General	55	32	33	44	45	37	48	45	38	15
Geological Sciences, Other	27	31	23	31	22	24	21	16	29	21
Environmental Sciences	53	77	61	54	45	53	40	54	53	50
Hydrology and Water Resources	17	18	15	23	31	20	27	21	24	20
Oceanography	81	86	89	113	98	91	85	70	92	87
Marine Sciences	-	-	-	9	28	31	25	30	41	22
Physical Sciences, Other	-	-	-	-	-	-	-	-	-	13

APPENDIX TABLE B (continued)

	Year of Doctorate									
	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Engineering	**3147**	**3002**	**2834**	**2643**	**2423**	**2490**	**2479**	**2528**	**2646**	**2780**
Aerospace, Aeronaut & Astronaut	148	141	122	115	103	81	81	97	86	106
Agricultural	52	56	37	33	43	66	68	64	48	58
Bioengineering and Biomedical	62	76	73	75	79	69	68	64	59	73
Ceramic	26	22	24	30	24	24	24	24	20	24
Chemical	388	370	314	306	261	287	285	296	306	349
Civil	324	290	314	269	236	236	240	287	308	354
Communications	-	-	-	-	-	-	-	-	-	25
Computer	-	102	119	123	76	78	62	71	72	83
Electrical, Electronics	678	612	592	544	463	533	478	478	544	517
Engineering Mechanics	167	162	113	102	95	85	91	78	103	68
Engineering Physics	25	19	19	20	15	17	18	22	12	10
Engineering Science	-	-	-	-	-	-	-	-	-	30
Environmental Health Engineering	66	71	74	67	67	66	66	71	60	43
Industrial	92	92	67	73	51	82	77	66	79	86
Materials Science	116	132	117	125	125	125	143	113	147	157
Mechanical	377	325	304	270	282	281	293	282	334	311
Metallurgical	138	118	111	93	98	87	106	97	88	87
Mining and Mineral	2	7	6	2	7	4	4	8	7	22
Naval Architecture, Marine Eng	-	-	-	-	-	-	-	-	-	4
Nuclear	111	89	134	105	107	95	112	130	121	103
Ocean	-	-	-	-	-	-	-	-	-	12
Operations Research	128	89	82	76	84	67	63	80	58	44
Petroleum	16	17	17	18	19	24	31	21	27	22
Polymer	-	-	-	-	-	-	-	-	-	21
Systems	-	79	69	71	63	75	61	68	49	57
Engineering, General	54	38	41	33	44	32	42	36	29	30
Engineering, Other	177	95	85	93	81	76	66	75	89	84
Life Sciences	**4962**	**5026**	**5026**	**4920**	**5038**	**5223**	**5460**	**5607**	**5709**	**5540**
Biological Sciences	3484	3497	3573	3484	3516	3646	3803	3804	3890	3732
Biochemistry	599	620	617	609	607	603	673	645	649	646
Biophysics	122	112	123	141	110	133	108	99	91	88
Bacteriology	-	-	-	-	-	-	-	-	-	10
Plant Genetics	-	-	-	-	-	-	-	-	-	19
Plant Pathology	-	-	-	-	-	-	-	-	-	29
Plant Physiology	77	67	52	43	43	57	52	68	56	67
Botany, Other	177	155	182	158	148	141	144	147	146	116
Anatomy	122	119	133	116	144	151	147	156	103	104
Biometrics and Biostatistics	36	37	46	52	45	44	42	48	59	45
Cell Biology	40	41	46	37	33	39	44	47	41	119
Ecology	149	142	140	163	170	173	169	198	173	183
Hydrobiology	17	8	13	14	3	10	-	-	-	-
Embryology	22	27	13	19	15	14	18	20	10	13
Endocrinology	-	-	-	-	-	-	-	-	-	28
Entomology	175	170	145	153	146	162	161	143	170	141
Immunology	69	71	93	101	94	134	125	148	151	154
Molecular Biology	140	156	148	131	172	140	183	187	224	225
Microbiology & Bacteriology	382	363	362	312	349	349	365	355	325	-
Microbiology	-	-	-	-	-	-	-	-	-	308
Neurosciences	-	-	-	-	-	-	-	-	117	134
Nutritional Sciences			85	82	90	107	90	99	119	111
Parasitology	26	18	19	17	13	21	22	18	14	9
Toxicology	-	-	-	-	-	-	-	-	-	60
Human and Animal Genetics	-	-	-	-	-	-	-	-	-	95
Genetics	126	156	143	141	126	141	157	157	176	-
Human and Animal Pathology	81	67	94	99	90	85	108	106	97	96
Human and Animal Pharmacology	176	166	205	196	216	220	257	280	276	217
Human and Animal Physiology	313	332	285	321	315	314	340	327	309	243
Zoology, Other	260	271	258	254	231	249	226	198	199	192
Biological Sciences, General	191	185	190	178	191	187	209	204	196	174
Biological Sciences, Other	184	214	171	147	165	172	163	154	129	106
Health Sciences	476	462	503	511	510	568	585	653	689	636
Audiology and Speech Pathology	128	121	145	146	143	139	123	140	129	113
Environmental Health	22	20	28	25	31	40	40	44	39	38
Public Health	-	-	-	-	-	-	-	-	-	51
Public Health & Epidemiology	113	110	116	109	98	121	127	157	105	-
Epidemiology	-	-	-	-	-	-	-	-	-	70
Hospital Administration	7	6	2	8	-	-	-	-	-	-
Medicine and Surgery	5	7	8	-	-	-	-	-	-	-
Nursing	-	-	-	32	32	53	77	89	112	126
Pharmacy	62	69	63	49	72	69	70	69	81	81
Veterinary Medicine	33	25	37	24	27	41	41	41	41	45
Health Sciences, General	16	18	14	18	15	19	15	24	16	20
Health Sciences, Other	90	86	90	100	92	86	92	89	106	86
Agricultural Sciences	1002	1067	950	925	1012	1009	1072	1150	1130	1172
Agricultural Economics	182	162	162	143	159	154	160	168	179	157
Animal Breeding and Genetics	-	-	-	-	-	-	-	-	-	25
Animal Husbandry	17	21	17	25	21	26	25	19	22	-
Animal Nutrition	136	130	119	101	101	112	119	149	133	56
Animal Sciences, Other	-	-	-	-	-	-	-	-	-	92

APPENDIX TABLE B (continued)

	Year of Doctorate									
	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Agronomy	132	134	146	123	137	138	151	177	159	149
Plant Breeding and Genetics	-	-	-	-	-	-	-	-	-	71
Plant Pathology	91	100	83	82	89	88	118	99	114	92
Plant Sciences, Other	-	-	-	-	-	-	-	-	-	16
Food Sciences	101	111	91	107	117	107	102	104	110	141
Soil Sciences	90	97	69	72	97	71	79	90	83	85
Horticulture Science	44	77	51	60	65	69	73	85	88	72
Fish and Wildlife	54	63	55	66	61	66	73	66	65	-
Fisheries Science	-	-	-	-	-	-	-	-	-	36
Wildlife Management	-	-	-	-	-	-	-	-	-	31
Forestry Science	74	86	79	66	88	87	80	95	78	90
Agriculture, General	5	8	9	6	6	7	3	5	5	7
Agriculture, Other	76	78	69	74	71	84	89	93	94	52
Social Sciences (Incl Psych)	**5884**	**6066**	**6214**	**6073**	**6039**	**5961**	**5855**	**6142**	**5836**	**6055**
Anthropology	379	386	428	385	399	383	370	369	333	373
Area Studies	35	36	30	18	26	24	22	20	19	20
Criminology	-	-	-	-	-	-	30	35	36	49
Demography	-	-	-	-	-	-	-	-	-	26
Economics	834	868	855	811	778	780	744	808	737	792
Econometrics	19	27	30	29	23	22	22	17	24	21
Geography	195	187	155	155	158	129	131	109	106	121
International Relations	133	113	123	96	92	81	80	87	77	77
Political Science and Government	1	1	628	614	603	522	505	445	459	397
Political Sci & Public Admin	775	748	40	-	-	-	-	-	-	-
Public Policy Studies	-	-	-	-	-	-	-	-	-	68
Sociology	645	680	734	725	610	632	601	605	568	525
Statistics	37	43	35	35	46	23	33	40	43	47
Urban Studies	70	76	92	80	76	91	79	94	93	74
Social Sciences, General	34	36	35	27	33	33	32	22	34	17
Social Sciences, Other	129	114	146	108	140	150	108	133	149	141
Psychology	2598	2751	2883	2990	3055	3091	3098	3358	3158	3307
Clinical	771	810	883	936	1061	1069	1106	1259	1167	1209
Cognitive	-	-	-	-	-	-	-	-	-	65
Comparative	23	22	28	22	20	21	8	11	12	11
Counseling	201	231	267	269	278	315	299	351	348	432
Developmental	162	181	190	203	208	221	207	201	192	219
Experimental	354	351	357	337	299	293	307	283	240	209
Educational	122	134	124	136	145	163	137	180	140	153
Industrial and Organizational	80	63	73	81	74	87	66	87	83	90
Personality	60	62	62	63	41	42	43	49	36	32
Physiological	118	124	133	132	126	102	108	102	90	94
Psychometrics	24	17	27	19	15	25	21	27	8	10
Quantitative	-	-	-	-	-	-	-	-	-	14
School	89	103	143	148	125	125	176	133	166	121
Social	202	233	209	202	204	216	190	180	179	191
Psychology, General	250	244	218	263	299	207	210	279	242	287
Psychology, Other	142	176	169	179	160	205	220	216	255	170
Humanities	**5170**	**5046**	**4881**	**4562**	**4231**	**4139**	**3868**	**3748**	**3559**	**3494**
History, American	456	430	383	342	321	302	285	228	271	224
History, European	337	357	288	261	215	218	196	166	158	168
History of Science	33	27	36	29	25	28	21	26	29	13
History, General	-	-	-	-	-	-	-	-	-	58
History, Other	360	369	388	329	291	281	243	272	234	153
Classics	88	93	79	60	67	56	54	62	60	44
Comparative Literature	-	-	157	152	114	144	107	132	118	124
Linguistics	168	194	152	190	175	156	182	176	191	164
Speech and Debate	138	102	98	61	69	53	63	38	38	48
Letters, General	-	-	-	-	-	-	-	-	-	3
Letters, Other	-	-	-	-	-	-	-	-	-	19
American Studies	-	65	86	93	82	84	81	87	64	98
Archeology	20	23	22	23	32	35	26	28	21	30
Art, Applied	4	8	0	-	-	-	-	-	-	-
Art History and Criticism	125	141	145	152	150	166	144	158	138	150
Music	376	381	353	404	368	419	402	368	402	391
Philosophy	417	374	382	331	290	278	255	277	251	242
Religion	171	191	174	176	189	196	170	162	149	173
Theatre	-	-	-	85	102	97	94	103	94	107
Language and Literature	2256	2116	2049	1804	1662	1555	1487	1396	1261	1218
American	258	251	236	220	212	206	209	145	154	173
English	1111	1039	978	856	813	703	743	675	617	541
French	276	247	242	211	183	187	162	167	119	121
German	169	164	178	140	103	116	99	88	74	77
Italian	26	17	24	22	23	20	10	16	17	22
Spanish	235	237	234	199	173	181	145	184	177	161
Russian	64	53	58	56	52	42	32	28	24	24
Slavic	-	-	-	-	-	-	-	-	-	9
Chinese	-	-	-	-	-	-	-	-	-	16
Japanese	-	-	-	-	-	-	-	-	-	5
Hebrew	-	-	-	-	-	-	-	-	-	11

APPENDIX TABLE B (continued)

	Year of Doctorate									
	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Arabic	-	-	-	-	-	-	-	-	-	8
Other Languages	117	108	99	100	103	100	87	93	79	50
Humanities, General	24	24	27	21	25	19	12	23	28	17
Humanities, Other	197	151	62	49	54	52	46	46	52	50
Professional Fields	1581	1575	1710	1661	1741	1717	1634	1618	1784	1728
Business Administration	796	787	739	671	713	715	640	624	686	755
Accounting	-	-	-	-	-	-	-	-	-	163
Banking and Finance	-	-	-	-	-	-	-	-	-	94
Business Admin and Management	-	-	-	-	-	-	-	-	-	180
Business Economics	-	-	-	-	-	-	-	-	-	25
Marketing Management and Research	-	-	-	-	-	-	-	-	-	73
Business Statistics	-	-	-	-	-	-	-	-	-	8
Operations Research	-	-	-	-	-	-	-	-	-	38
Organizational Behavior	-	-	-	-	-	-	-	-	-	53
Business and Management, General	-	-	-	-	-	-	-	-	-	36
Business and Management, Other	796	787	739	671	713	715	640	624	686	85
Communications	311	264	295	303	292	285	270	240	266	252
Communications Research	-	-	-	-	-	-	-	-	-	51
Journalism	22	20	15	18	22	17	17	18	18	21
Radio and Television	-	-	-	-	-	-	-	-	-	27
Communications, General	-	-	-	-	-	-	-	-	-	60
Communications, Other	289	244	280	285	270	268	253	222	248	93
Other Professional Fields	474	524	676	687	736	717	724	754	832	721
Architecture, Environmental Design	-	-	-	-	-	-	-	-	-	34
Home Economics	43	42	68	76	81	88	90	85	98	79
Law	24	22	20	27	22	24	21	28	21	19
Library and Archival Science	56	59	58	73	57	66	66	62	83	51
Public Administration	-	1	96	169	156	164	146	147	173	114
Social Work	113	134	156	167	173	154	178	209	217	184
Theology	177	178	190	155	227	193	195	200	206	223
Professional Fields, Other	61	88	88	20	20	28	28	23	34	17
Education	7241	7359	7725	7455	7194	7385	7586	7497	7232	7147
Curriculum and Instruction	776	824	786	759	808	874	838	815	809	856
Educational Admin and Supervision	1377	1508	1683	1516	1455	1500	1536	1659	1470	1619
Educational Media	83	90	92	82	92	92	75	77	76	88
Educational Measures and Statistics	97	117	104	118	97	104	89	90	94	-
Educational Statistics and Research	-	-	-	-	-	-	-	-	-	86
Educational Testing, Eval and Meas	-	-	-	-	-	-	-	-	-	51
Educational Psychology	472	458	488	498	445	415	476	445	447	274
School Psychology	-	-	-	-	-	-	-	-	-	88
Social Foundations	271	241	246	230	237	242	214	209	214	142
Special Education	282	284	316	324	311	316	346	312	347	349
Student Counseling, Personnel Serv	639	737	695	662	560	607	594	549	539	502
Higher Education	587	623	652	715	615	683	685	671	653	632
Pre-elementary Education	-	-	-	-	-	-	74	90	77	63
Elementary Education	288	233	218	187	217	169	162	180	149	111
Junior High Education	-	-	-	-	-	-	-	-	-	1
Secondary Education	208	190	179	142	134	154	168	136	104	87
Adult and Continuing Education	162	147	191	173	200	169	235	233	257	221
Teaching Fields	1479	1417	1418	1439	1352	1411	1471	1437	1332	1328
Agricultural Education	26	24	31	25	35	24	39	43	35	47
Art Education	56	55	58	55	48	50	45	63	55	58
Business Education	82	96	72	65	62	66	52	50	44	62
English Education	94	85	93	69	80	80	76	64	67	76
Foreign Languages Education	28	25	30	36	39	35	36	29	31	25
Physical Educ, Health & Rec	357	331	337	333	323	346	365	368	351	-
Health Education	-	-	-	-	-	-	-	-	-	99
Home Economics Education	32	37	28	31	26	29	27	25	33	25
Industrial Arts Education	56	51	45	39	43	29	27	27	39	19
Mathematics Education	104	108	96	98	57	85	74	62	50	62
Music Education	116	106	99	89	85	88	110	76	103	112
Nursing Education	-	-	-	-	-	-	41	23	25	17
Physical Education	-	-	-	-	-	-	-	-	-	236
Reading Education	1	-	112	134	142	151	160	193	152	169
Science Education	129	105	106	128	101	93	96	107	86	78
Social Science Education	62	52	54	49	46	65	52	49	29	39
Speech Education	-	16	25	14	20	16	10	12	12	2
Trade and Industrial Education	191	175	175	211	197	201	229	213	191	138
Other Teaching Fields	145	151	57	63	48	53	32	33	29	64
Education, General	379	294	416	396	425	410	427	405	418	347
Education, Other	141	196	241	214	246	239	196	189	246	302
Other and Unspecified	86	20	47	24	14	23	22	35	24	22

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

SURVEY OF EARNED DOCTORATES, 1982-83

Form Approved
OMB No. 3145-0019
Approval Expires 1/85

This form is to be returned to the GRADUATE DEAN, for forwarding to ..... Commission on Human Resources
National Research Council
2101 Constitution Avenue, Washington, D. C. 20418

Please print or type.

1. Name in full: ..... (9-30)
(Last Name) (First Name) (Middle Name)

Cross Reference: Maiden name or former name legally changed .....

2. Permanent address through which you could always be reached: (Care of, if applicable) .....
(Number) (Street) (City)
(State) (Zip Code) (Or Country if not U.S.)

3. U.S. Social Security Number: — — — – — — – — — — (33-41)

4. Date of birth: ..... (10-14) (Month) (Day) (Year) Place of birth: ..... (15-16) (State) (Or Country if not U.S.)

5. Sex: 1 ☐ Male 2 ☐ Female (17)

6. Marital status: 1 ☐ Married 2 ☐ Not married (including widowed, divorced) (18)

7. Citizenship: 0 ☐ U.S. native 2 ☐ Non-U.S., Immigrant (Permanent Resident)
1 ☐ U.S. naturalized 3 ☐ Non-U.S., Non-Immigrant (Temporary Resident) (19)
If Non-U.S., indicate country of present citizenship ..... (20-21)

8. What is your racial background? (Check only one) 0 ☐ American Indian or Alaskan Native 2 ☐ Black
1 ☐ Asian or Pacific Islander 3 ☐ White (22)

9a. Is your ethnic heritage Hispanic? ☐ Yes ☐ No (23)

9b. If yes, is it: 0 ☐ Mexican American 1 ☐ Puerto Rican 2 ☐ Other Hispanic (24)

10. Number of dependents: ..... Do not include yourself. (Dependent = someone receiving at least one half of his or her support from you) (25)

EDUCATION

11. Location of high school last attended: ..... (26-27)
(State) (or country if not U.S.)
Year of graduation from high school: ..... (28-29)

12. List in the table below all collegiate and graduate institutions you have attended including 2-year colleges. List chronologically, and include your doctoral institution as the last entry.

Institution Name	Location	Years Attended From	Years Attended To	Major Field Use Specialties List Name	Major Field Use Specialties List Number	Degree (if any) Title of Degree	Degree (if any) Granted Mo.	Degree (if any) Granted Yr.

13. Enter below the title of your doctoral dissertation and the most appropriate classification number and field. If a project report or a musical or literary composition (not a dissertation) is a degree requirement, please check box. ☐ (12)

Title .....
.....
.....

Classify using Specialties List
Number Name of field
....

14. Name the department (or interdisciplinary committee, center, institute, etc.) and school or college of the university which supervised your doctoral program: .....
(Department/Institute/Committee/Program) (School)

15. Name of your adviser for dissertation, project report or music/literary composition: .....
(Last Name) (First Name) (Middle Initial)

continued on next page

16. Please enter a "1" beside your primary source of support during graduate study. Enter a "2" beside your secondary source of support during graduate study. Check (✓) all other sources from which support was received.

a — NSF Fellowship
b — NSF Traineeship
c — NIH Fellowship
d — NIH Traineeship
e — NDEA Fellowship
f — Title IX Graduate & Professional Opportunities Pgm. Fellowship
g — Other HEW
h — AEC/ERDA/DOE Fellowship
j — GI Bill
k — Other Federal support (specify) .....
l — Woodrow Wilson Fellowship
m — Other U.S. national (non-federal) fellowship
..... (specify)
n — University Fellowship
o — Teaching Assistantship
p — Research Assistantship
q — Educational fund of industrial or business firm
r — Other institutional funds
..... (specify)
s — Own earnings
t — Spouse's earnings
u — Family contributions
v — Loans (NDSL direct)
w — Other loans
x — Other
..... (specify) (26-49)

17a. Please check the category which most fully describes your status during the year immediately preceding the doctorate.

0 ☐ Full-time employed (Go to Item "17b")
1 ☐ Held fellowship
2 ☐ Held assistantship
3 ☐ Part-time employed
4 ☐ Not employed
5 ☐ Other (specify) .....

17b. If full-time employed, what type of position did you hold?

6 ☐ College or university, faculty
7 ☐ College or university, non-faculty
8 ☐ Elem. or sec. school, teaching
9 ☐ Elem. or sec. school, non-teaching
(11) ☐ Industry or business
(12) ☐ Other (specify) ..... (50)

POSTGRADUATION PLANS

18. What is the status of your current postgraduate plans?

0 ☐ Am returning to, or continuing in, predoctoral employment
1 ☐ Have signed contract or made definite commitment
2 ☐ Am negotiating with one or more specific organizations
3 ☐ Am seeking position but have no specific prospects
4 ☐ Other (specify) ..... (51)

19. What best describes your immediate postgraduate plans?

0 ☐ Postdoctoral fellowship
1 ☐ Postdoctoral research associateship
2 ☐ Traineeship
3 ☐ Other study (specify) .....
} Go to Item "20"

4 ☐ Employment (other than 0, 1, 2, 3)
5 ☐ Military service
6 ☐ Other (specify) ..... (52)
} Go to Item "21"

20. If you plan to have a postdoctoral fellowship, associateship, traineeship, or otherwise undertake further study

A. What was the most important reason for taking a postdoctoral appointment? (Check only one.)

0 ☐ To obtain additional research experience in my doctoral field
1 ☐ To work with a particular scientist or research group
2 ☐ To switch into a different field of research
3 ☐ Could not obtain the desired type of employment position
4 ☐ Other reason (specify) ..... (53)

B. What will be the field of your postdoctoral study?
Please enter number from Specialties List ..... (54-56)

C. What will be the primary source of research support?

0 ☐ U.S. Government
1 ☐ College or university
2 ☐ Private foundation
3 ☐ Nonprofit, other than private foundation
4 ☐ Other (specify)
.....
6 ☐ Unknown (57)

Go to Item "22"

21. If you plan to be employed, enter military service, or other—

A. What will be the type of employer?

a ☐ 4-year college or university other than medical school
b ☐ Foreign university
c ☐ Medical school
d ☐ Jr. or community college
e ☐ Elem. or sec. school
f ☐ Foreign government
g ☐ U.S. Federal government
h ☐ U.S. state government
i ☐ U.S. local government
j ☐ Nonprofit organization
k ☐ Industry or business
l ☐ Self-employed
m ☐ Other (specify) ..... (58)

B. Indicate what your *primary* work activity will be with "1" in appropriate box; *secondary* work activity (if any) with "2" in appropriate box.

0 ☐ Research and development
1 ☐ Teaching
2 ☐ Administration
3 ☐ Professional services to individuals
5 ☐ Other (specify) ..... (59-60)

C. In what field will you be working?
Please enter number from Specialties List ..... (61-63)

D. Did you seriously consider undertaking postdoctoral study?
Yes ___ No ___ (64)

If yes, why did you decide against the postdoctoral?

0 ☐ No postdoctoral appointment available
1 ☐ Felt that I would derive little or no benefit from a postdoctoral appointment
2 ☐ Postdoctoral available but stipend inadequate
3 ☐ Had more attractive employment opportunity
4 ☐ Other (specify) ..... (65)

Go to Item "22"

22. What is the name and address of the organization with which you will be associated?

..... (Name of Organization)

..... (Street) ..... (City, State) ..... (Or Country if not U.S.) (66-71)

BACKGROUND INFORMATION

23. Please indicate, by circling the highest grade attained, the education of

		Elementary school								High school				College				Graduate				
your father:	none	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	MA, MD		PhD		Postdoctoral (72)
your mother	none 0	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	MA, MD		PhD		Postdoctoral (73)
		1			2			3		4			5	6			7	8		9		(11)

Signature ..... Date ..... (74-76)

If you would like to receive a summary of the results of this survey, please check box. ☐ (79)

Instructions: The following field listing is to be used in responding to items 12, 13, 20b, and 21c. If a field marked with an asterisk (*) is chosen in item 12 or 13, please write in your field of specialization in the space provided.

AGRICULTURE

000 Agricultural Economics

005 Animal Breeding & Genetics
010 Animal Nutrition
019 Animal Sciences, Other*

020 Agronomy
025 Plant Breeding & Genetics
030 Plant Path. (See also 120)
039 Plant Sciences, Other*

040 Food Sciences
045 Soil Sciences
050 Horticulture Science
055 Fisheries Sciences
060 Wildlife Management
065 Forestry Science

098 Agriculture, General
099 Agriculture, Other*

BIOLOGICAL SCIENCES

100 Biochemistry
105 Biophysics

110 Bacteriology
115 Plant Genetics
120 Plant Path. (See also 030)
125 Plant Physiology
129 Botany, Other*

130 Anatomy
133 Biometrics & Biostatistics
136 Cell Biology
139 Ecology
142 Embryology
145 Endocrinology
148 Entomology
151 Immunology
154 Molecular Biology
157 Microbiology
160 Neurosciences
163 Nutritional Sciences
166 Parasitology
169 Toxicology
170 Genetics, Human & Animal
175 Pathology, Human & Animal
180 Pharmacology, Human & Animal
185 Physiology, Human & Animal
189 Zoology, Other*

198 Biological Sciences, General
199 Biological Sciences, Other*

HEALTH SCIENCES

200 Audiology & Speech Pathology
210 Environmental Health
215 Public Health
220 Epidemiology
230 Nursing
240 Pharmacy
250 Veterinary Medicine
298 Health Sciences, General
299 Health Sciences, Other*

ENGINEERING

300 Aerospace, Aeronautical & Astronautical
303 Agricultural
306 Bioengineering & Biomedical
309 Ceramic
312 Chemical
315 Civil
318 Communications
321 Computer
324 Electrical, Electronics
327 Engineering Mechanics
330 Engineering Physics
333 Engineering Science
336 Environmental Health Engin.
339 Industrial
342 Materials Science
345 Mechanical
348 Metallurgical
351 Mining & Mineral
354 Naval Arch. & Marine Engin.
357 Nuclear
360 Ocean
363 Operations Research (See also 465, 930)
366 Petroleum
369 Polymer
372 Systems
398 Engineering, General
399 Engineering, Other*

COMPUTER AND INFORMATION SCIENCES

400 Computer Sciences*
410 Information Sci. & Systems*

MATHEMATICS

420 Applied Mathematics
425 Algebra
430 Analysis & Functional Anal.
435 Geometry
440 Logic (See also 785)
445 Number Theory
450 Probability & Math. Statistics (See also 690)
455 Topology
460 Computing Theory & Practice
465 Operations Research (See also 363, 930)
498 Mathematics, General
499 Mathematics, Other*

PHYSICAL SCIENCES

Astronomy

500 Astronomy
505 Astrophysics

Atmospheric & Meteorological Sciences

510 Atmospheric Physics & Chem.
512 Atmospheric Dynamics
514 Meteorology
518 Atmos. & Meteorol. Sci., Gen.
519 Atmos. & Meteorol. Sci., Other*

Chemistry

520 Analytical
522 Inorganic
524 Nuclear
526 Organic
528 Pharmaceutical
530 Physical
532 Polymer
534 Theoretical
538 Chemistry, General
539 Chemistry, Other*

Geological Sciences

540 Geology
542 Geochemistry
544 Geophysics & Seismology
546 Paleontology
548 Mineralogy, Petrology
550 Stratigraphy, Sedimentation
552 Geomorphology & Glacial Geology
554 Applied Geology
558 Geological Sciences, General
559 Geological Sciences, Other*

Physics

560 Acoustics
561 Atomic & Molecular
562 Electron
564 Elementary Particle
566 Fluids
568 Nuclear
569 Optics
570 Plasma
572 Polymer
574 Solid State
578 Physics, General
579 Physics, Other*

Other Physical Sciences

580 Environmental Sciences
585 Hydrology & Water Resources
590 Oceanography
595 Marine Sciences
599 Physical Sciences, Other*

PSYCHOLOGY

600 Clinical
603 Cognitive
606 Comparative
609 Counseling
612 Developmental
615 Experimental
618 Educational (See also 822)
621 Industrial & Organizational (See also 935)
624 Personality
627 Physiological
630 Psychometrics
633 Quantitative
636 School (See also 825)
639 Social
648 Psychology, General
649 Psychology, Other*

SOCIAL SCIENCES

650 Anthropology
652 Area Studies
658 Criminology
662 Demography
666 Economics
668 Econometrics
670 Geography
674 International Relations
678 Political Sci. & Government
682 Public Policy Studies
686 Sociology
690 Statistics (See also 450)
694 Urban Studies
698 Social Sciences, General
699 Social Sciences, Other*

HUMANITIES

History

700 History, American
705 History, European
710 History of Science
718 History, General
719 History, Other*

Letters

720 Classics
723 Comparative Literature
729 Linguistics
732 Literature, American
733 Literature, English
734 English Language
736 Speech & Debate
738 Letters, General
739 Letters, Other*

Foreign Languages and Literature

740 French
743 German
746 Italian
749 Spanish
752 Russian
755 Slavic (other than Russian)
758 Chinese
762 Japanese
765 Hebrew
768 Arabic
769 Other Languages*

Other Humanities

770 American Studies
773 Archeology
776 Art History & Criticism
780 Music
785 Philosophy (See also 440)
790 Religion (See also 984)
795 Theatre
798 Humanities, General
799 Humanities, Other*

EDUCATION

800 Curriculum & Instruction
805 Educ. Admin. & Superv.
810 Educational Media
815 Educ. Stat. & Research
820 Educ. Testing, Eval. & Meas.
822 Educational Psychology (See also 618)
825 School Psych. (See also 636)
830 Social Foundations
835 Special Education
840 Student Counseling & Personnel Services
845 Higher Education

Teacher Education

850 Pre-elementary
852 Elementary
854 Junior High
856 Secondary
858 Adult & Continuing

Teaching Fields

860 Agricultural Educ.
861 Art Educ.
862 Business Educ.
864 English Educ.
866 Foreign Languages Educ.
868 Health Educ.
870 Home Economics Educ.
872 Industrial Arts Educ.
874 Mathematics Educ.
876 Music Educ.
878 Nursing Educ.
880 Physical Educ.
882 Reading Educ.
884 Science Educ.
885 Social Science Educ.
886 Speech Educ.
888 Trade & Industrial Educ.
889 Teacher & Educ. Specific Subject Areas, Other*

898 Education, General
899 Education, Other*

PROFESSIONAL FIELDS

Business & Management

900 Accounting
905 Banking & Finance
910 Business Admin. & Management
915 Business Economics
920 Marketing Mngmnt. & Research
925 Business Statistics
930 Operations Research (See also 363, 465)
935 Organiz. Beh. (See also 621)
938 Business & Mngmnt., General
939 Business & Mngmnt., Other*

Communications

940 Communications Research
945 Journalism
950 Radio & Television
958 Communications, General
959 Communications, Other*

Other Professional Fields

960 Architec. & Environ. Design
964 Home Economics
968 Law
972 Library & Archival Science
976 Public Administration
980 Social Work
984 Theology (See also 790)
988 Professional Fields, General
989 Professional Fields, Other*

999 OTHER FIELDS*

CODE NUMBERS FOR FIELDS DISPLAYED IN TABLE 2

Physics & Astronomy (500-505, 560-579)
Chemistry (520-539)
Earth, Atmospheric and Marine Sciences (510-519, 540-559, 580-599)

Physical Sciences Subtotal (500-599)
Mathematics (420-499)
Computer Sciences (400-410)
Engineering (300-399)

EMP Total (300-599)

Biochemistry (100)
Other Biosciences (105-199)

Biosciences Subtotal (100-199)
Health Sciences (200-299)
Agricultural Sciences (000-099)

Life Sciences Total (000-299)

Psychology (600-649)
Economics and Econometrics (666, 668)
Anthropology and Sociology (650, 686)
Political Science and International Relations (674, 678)
Other Social Sciences (652-662, 670, 682, 690-699)

Social Sciences Total (600-699)

Total Sciences (000-699)

History (700-719)
English and American Language and Literature (726, 732, 733)
Foreign Languages and Literature (740-769)
Other Humanities (720-723, 729, 736-739, 770-799)

Humanities Total (700-799)

Business and Management (900-939)

Other Professional Fields (940-989)

Education (800-899)

Total Non-Sciences (700-989)

Other or Unspecified (999)

TITLES OF DEGREES INCLUDED IN THE SURVEY OF EARNED DOCTORATES

DAS	Doctor of Applied Science	DM	Doctor of Music
DArch	Doctor of Architecture	DMA	Doctor of Musical Arts
DA	Doctor of Arts	DME	Doctor of Music Education
DBA	Doctor of Business Administration	DML	Doctor of Modern Languages
JCD	Doctor of Canon Law	DNSc	Doctor of Nursing Science
DCJ	Doctor of Criminal Justice	PhD	Doctor of Philosophy
DCrim	Doctor of Criminology	DPE	Doctor of Physical Education
EdD	Doctor of Education	DPS	Doctor of Professional Studies
DEng	Doctor of Engineering	DPA	Doctor of Public Administration
DESc	Doctor of Engineering Science	DPH	Doctor of Public Health
ScDE	Doctor of Engineering Science	DRec or DR	Doctor of Recreation
DEnv	Doctor of Environment	DRE	Doctor of Religious Education
DED	Doctor of Environmental Design	DSM	Doctor of Sacred Music
DFA	Doctor of Fine Arts	STD	Doctor of Sacred Theology
DF	Doctor of Forestry	DSc	Doctor of Science
DGS	Doctor of Geological Science	DScH	Doctor of Science and Hygiene
DHS	Doctor of Health and Safety	LScD	Doctor of Science and Law
DHL	Doctor of Hebrew Literature	DScD	Doctor of Science in Dentistry
DHS	Doctor of Hebrew Studies	DScVM	Doctor of Science in Veterinary Medicine
DIT	Doctor of Industrial Technology	DSSc	Doctor of Social Science
SJD	Doctor of Juridical Science	DSW	Doctor of Social Work
JSD	Doctor of Juristic Science	ThD	Doctor of Theology
DLS	Doctor of Library Science		
DMSc	Doctor of Medical Science		
DMin or DM	Doctor of Ministry		

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